

## ATTACHMENT 6

EFFLUENT LIMITATIONS/MONITORING  
RATIONALE/SUITABLE DATA/  
ANTIDEGRADATION/ANTIBACKSLIDING

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

Outfall 001 (101 and 102), 002 (201), and 004 in VPDES Permit No. VA0003018 are major industrial discharges from the operation of a petroleum refining facility located on the shore of the York River in Yorktown, Virginia. The facility produces gasoline, propane, butane, jet fuels, furnace oils, distillate fuels, petroleum coke and sulfur. The facility operates 24 hours per day, 365 days per year.

The Western Refining, Inc. site sits adjacent to Virginia Power's Yorktown Power Station and Hampton Roads Sanitation District (HRSD) Yorktown municipal wastewater treatment plant. These facilities work together on several levels of operations. Fuel oils utilized by the power station are conveyed via the refinery pier and used for tank vessel mooring. The attendant conveyance piping and manifold systems are maintained by the refinery. In addition, the refinery and the power station both draw York River water from the same intake channel. Finally, the refinery operates with reclaimed and reused waters from HRSD.

The facility discharges at a maximum 30 day average flow rate of 77.45 MGD. The receiving waters, York River, were assigned a Tier 1 classification. In accordance with 9 VAC 25-560-50, the receiving waters were further assigned Class II waters, tidal waters in the Chesapeake Bay and its tidal tributaries.

Outfall 001 consists of the final discharge of treated process and sanitary wastewaters (internal outfall 101), and once-through cooling waters (internal outfall 102). Outfall 002 consists of precipitation from runoff associated with industrial activity, diverted flows from Outfalls 101 and/or 102, fire main wastewaters, and uncontaminated wastewaters from hydrostatic testing (outfall 201). Outfall 004 consists of wastewater associated with fire main flushing and freeze protection at the offshore pier where tank vessels and barges moor during petroleum product transfer activities.

The facility's production capacity is 70 Mbbl (70,000 thousand barrels per day). This was modified from the original application where 72 Mbbl was listed form 2C.III.C.a. (see e-mail 2/4/10). For the purposes of developing effluent limitations based on the guidelines appearing at 40 CFR 419.22, a daily stream value of 70 Mbbl will be used in the calculations. Based on best professional judgment (BPJ) and the applicable guidelines, the required limitations for this categorical industry's process wastewaters are placed on internal outfall 101. The permittee defined their activity as Sub-Part B-Cracking Category of the Federal Effluent Guidelines, 40 CFR Part 419-Petroleum Refining Point Source Category. As in the previous issued permits for this facility, effluent limitations and monitoring requirements will be developed based on these guidelines.

Reclamation and Reuse

The facility incorporates reclamation and reuse waters from the nearby HRSD Yorktown WWTP. This is an existing use prior to the October 2008 Water Reclamation and Reuse Regulation (9 VAC 25-740) and the facility is grandfathered until the use is revised, modified or expanded (9 VAC 25-740-30). Therefore, no new language from this regulation is incorporated into the current permit or fact sheet. However, after reviewing the water flow schematics submitted with Form 2C of this reissuance, all wastewaters come in contact with reclamation and reuse



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

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October 6, 2003

Mr. David C. Pavlich  
Manager, Health, Safety and Environment  
Giant Yorktown Refinery  
2201 Goodwin Neck Road  
Grafton, VA 23692

RE: Approval of Water Reuse and Once-Through Cooling Water Treatment Proposal  
Concept Engineering Reports – VPDES Permit No. VA0003108

Dear Mr. Pavlich:

We have received the two Concept Engineering Reports referenced above. We reviewed the reports and found them to be acceptable. The CERs are hereby approved.

If you have any questions, please feel free to call me at (757) 518-2147.

Sincerely,

A handwritten signature in black ink, appearing to read "Anhthu Nguyen".

Anhthu Nguyen  
Environmental Engineer Sr.

cc: DEQ-TRO file



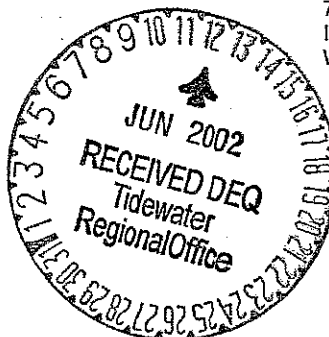
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June 10, 2002

**VIA CERTIFIED MAIL**

Ms. Anhthu Nguyen  
Environmental Engineer  
Department of Environmental Quality  
Tidewater Regional Office  
5636 Southern Boulevard  
Virginia Beach, Virginia 23462



**Subject: HRSD Reclaimed Water Use Concept Engineering Report (VPDES Permit No. VA0003108)**

Dear Ms. Nguyen:

As required by Part I.12 of the refinery VPDES permit, the Giant Yorktown Refinery wishes to submit this concept engineering report addressing a project to enable treated effluent from the Hampton Roads Sanitation District (HRSD) York River Treatment Plant to be substituted for York River water and Newport News Waterworks water used in the refinery's service water and firewater systems. The refinery has historically charged the firewater and service water systems with York River water and fresh Newport News Waterworks (NNW) water, respectively. Reclamation and reuse of HRSD effluent will provide significant water resource stewardship benefits to the Virginia Peninsula by better matching water supplies (reclaimed effluent) with water needs (non-potable industrial uses), and thereby making scarce potable water available for other uses.

Please do not hesitate to contact Peter Buckman at (757) 898-9673 if you should have any questions on this proposal.

Very truly yours,

John J. Stokes  
Senior Vice President

cc: D.B. Horne, Virginia Department of Health, Southeast Regional Office

**ATTACHMENT 6, continued**  
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waters and therefore bacteria limits are added Outfalls 101, 102, 200, and 004 based on existing Water Quality Standards.

VPDES General Permit for Nutrient Trading (VAN030047)

In the 2005 reissuance of the permit, nutrient limits and monitoring were added to the refinery's permit for total phosphorus and nitrogen based on the Policy for Nutrient Enriched Waters and because the refinery process does in fact generate compounds that contain these nutrients. In the spring of 2007, the refinery added a sour water stripper to the process operations. Process wastewater flows through the sour water stripper prior to entering the facility's sewer for treatment at the wastewater treatment plant. The sour water stripper was installed in order to assist with nutrient removal from the process wastewater.

Then, in April of 2007 a Board initiated modification reissuance for this facility was developed to further address nutrient reporting and monitoring at outfall 001. Permit regulation 9 VAC 25-820-10 (General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia) became effective November 1, 2006. The regulation governs facilities holding individual permits that discharge total nitrogen or total phosphorus to the Chesapeake Bay and its tributaries.

The modification consisted of removing duplicate mass loading effluent limitations, monitoring and reporting requirements for total nitrogen and total phosphorus that is now permitted under their VPDES General Permit for Nutrient Trading (VAN030047), Outfall 500. The general permit contains a schedule of compliance for the load allocations for Total Nitrogen and Total Phosphorus. The final effluent limits effective date is January 1, 2011. Total Phosphorus monitoring frequency was changed to 1/week from 2/Month at Outfall 001 to reflect the requirements in the nutrient general permit.

However, the total nitrogen monitoring and total phosphorus concentration limitation were not removed at that reissuance due to antibacksliding regulations. Since total nitrogen is not limited, this parameter will be removed from monitoring during this reissuance at Outfall 002; total phosphorus is limited and has to remain at this time.

Corrective Measures Implementation Work Plan (CMI WP)

Form 2C Section IV of the VPDES application requests information regarding any activities on site that may affect the discharge for this facility not otherwise described and the facility enclosed their latest revised CMI WP (included in this attachment. The Resource Conservation and Recovery Act (RCRA) Section 3008(h) CMI Final Administrative Order on Consent (CMI Order) became effective on August 18, 2006. This order is administrated by United States Environmental Protection Agency Region III with the assistance of Virginia DEQ.

The revised CMI WP provides updates to the investigations and corrective actions for impacted media (soil, surface water, and groundwater) on site. Contaminants

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The discharge point is a pipe located off-shore beneath the pier and approximately 35 feet down into the York River.

The facility maintains a wastewater treatment system for its process wastewaters, other wastewaters contribute as well. The required limitations for this categorical industry's process wastewaters are placed on internal outfall 101. The permittee's on-site sanitary wastewater is treated at the facility's wastewater treatment plant after it is commingled with the site's process wastewater. Following treatment and release to the conveyance leading to the final discharge from Outfall 001, the discharge from Outfall 101 becomes commingled with the temperature equalized once-through, non-contact cooling water discharge from internal Outfall 102. Outfall 102 is also limited internal to Outfall 001.

At times and to affect repairs to systems internal to the facility and its process operations, wastewaters from both 101 and 102 can be diverted to the site's storm water multi-cell sedimentation basin on a temporary basis.

Flow:                                There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH:                                    The minimum limit of 6.0 s.u. and maximum limit of 9.0 s.u. with monitoring 1/Week. This requirement is based on BPJ to protect water quality and is limited by the Water Quality Standards (9 VAC-260-50) for Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

Total  
Phosphorus:                            The monthly average limit of 2.0 mg/l with monitoring 1/Week. This is based on antibacksliding regulations, BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on receiving waters since the refinery process would generate compounds that contain phosphorus.

**Outfall 101**

This outfall is permitted for storm water from oily areas of the refinery, steam condensate, recovered groundwater, sanitary/gray wastewaters, and treated process wastewaters. The wastewater treatment system consists of both biological and chemical/physical treatment.

All areas of the site that may have storm water in possible contact with hydrocarbons are directed to the wastewater treatment system prior to discharge. These areas include process, distribution, storage and CMI areas. Contaminated runoff is collected and diverted to aboveground storage tanks the wastewater treatment system then commingled with the process wastewater during treatment. In the applicable FEG, under 40 CFR 419.20 for SubPart B (cracking), additional pollutant loading allowances are provided in those cases where the permittee treats contaminated precipitation runoff in addition to process wastewater

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generated at the same facility. These are included in the final effluent limitations.

Sanitary wastewaters are treated on site in the existing process wastewater treatment system. The total flow into the system is 0.003 MGD (Outfall 101). The wastewaters are directed to septic tanks then in to the combined sewer system leading to the treatment plant for treatment prior to discharge. Prior to release from the facility, the treated process/sanitary wastewaters are commingled with the once-through cooling water treated with a form of chlorine used to control bio-fouling of the distribution system throughout the facility's process operations. Data submitted during the application process for this outfall shows there is a contribution of bacteria to the outfall's discharge. Although the contribution is overall a low volume of sanitary wastewaters in comparison to other commingled flows of process wastewaters and contaminated storm water runoff, based on best professional judgment (BPJ), additional monitoring and effluent limitations will be incorporated in to the permit at this reissuance.

Finally, process wastewaters are collected and treated through the on site wastewater treatment system. The required limitations for the categorical process wastewaters are placed on this outfall. Limitations are based on calculations using the facility's production capacity of 70 Mbbl (stream-day value/Feedstock Rate) and the Federal Effluent Guidelines (FEG) found at 40 CFR

Part 419 - Petroleum Refining Point Source Category. The permittee defined their specific activity in the application as that defined in SubPart B of those guidelines - Cracking Subcategory. Therefore the provisions and limitations set forth in 40 CFR 419.22 and related sections were employed to develop Part I.A effluent limitations and monitoring requirements for Outfall 101 as displayed below:

Flow:	There is no limit on flow. Monitoring is continuous with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.
pH:	The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with continuous monitoring requirements. This requirement is based on FEG (40 CFR 419) and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.
BOD <sub>5</sub> :	The monthly average limit is 550 lbs/day and the daily maximum limit is 990 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.
TSS:	The monthly average limit is 440 lbs/day and the daily maximum limit is 690 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

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TOC: The monthly average limit is 1200 lbs/day and the daily maximum limit is 2200 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

O & G: The monthly average limit is 160 lbs/day and the daily maximum limit is 300 lbs/day with monitoring using grab sample 1/Week. This is a technology limit from the FEG based on BPT.

Ammonia  
(as N): The monthly average limit is 280 lbs/day and the daily maximum limit is 620 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

Total  
Phenols: The monthly average limit is 3.0 lbs/day and the daily maximum limit is 7.4 with monitoring using grab sample 1/Week. This is a technology limit from the FEG based on BPT for the daily maximum and based on BAT for the monthly average.

Sulfide: The monthly average limit is 2.7 lbs/day and the daily maximum limit is 6.1 lbs/day with monitoring using 24 hour composite 1/Week. This is a technology limit from the FEG based on BPT.

Total  
Chromium: The monthly average limit is 3.6 lbs/day and the daily maximum limit is 10 lbs/day with monitoring using 24 hour composite 1/Month. This is a technology limit from the FEG based on BAT.

Hexavalent  
Chromium: The monthly average limit is 0.31 lbs/day and the daily maximum limit is 0.68 lbs/day with monitoring using grab sample 1/Month. This is a technology limit from the FEG based on BAT.

Fecal  
Coliform: A monthly average limit of 200 n/cml. Monitoring required is a grab sample 2/Month. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Current guidance requires fecal coliform monitoring in salt or transition waters if the discharge is to shellfish waters. BPJ determines that this frequency is adequate to determine compliance with the standard.

Enterococci: A monthly average limit of 35 n/cml. Monitoring required is a grab sample 2/Month. This is based on water quality standards (9 VAC25-260-160).

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Outfall 101 PARAMETER-SPECIFIC CALCULATIONS FOR PROCESS WASTEWATERS:

Effluent limitations are initially developed considering a site's production size and process configuration and their capability to make any of five discrete products under the category. These factors appear as numeric values which are applied to development of effluent limitations.

The table found at 40 CFR 419.22(b)(1) yields: Factor a stream-day feedstock value of 70 Mbbbls (70,000bbls), a Size Factor (SF) value of 1.04 is applicable for use in the development of the effluent limitations.

The table below was developed to identify the value that is used to determine the Process Factor (PF). The Feedstock Capacities were provided by the permittee in an e-mail dated February 4, 2010.

PROCESS	FEEDSTOCK CAPACITY (1000 BBL/STREAM DAY)	RELATIVE CAPACITY	WEIGHT FACTOR 40CFR419.42 (B) (3)	PROCESS CONFIGURATION
CRUDE DISTILLATION	70.0	1.00 (70/70 = 1)	1	<b>2.71</b>  (2.71 x 1 = 2.71)
VACUUM TOWER	50.0	0.71 (50/70 = 0.59)		
CRUDE DESALTER	<u>70.0</u>	1.00 (70/70 = 1)		
CRUDE PROCESSES TOTAL	<b>190.0</b>	<b>2.71</b>		
FLUID CATALYTIC CRACKING (FCCU)	29.4	0.42 (29.4/70 = 0.42)	6	<b>4.5</b>  (0.75 x 6 = 4.50)
DELAYED COKING	<u>23.0</u>	0.33 (23/70 = 0.328)		
CRACKING/COKING PROCESSES TOTAL	<b>52.4</b>	<b>0.75</b>		
<b>TOTAL</b>				<b>7.21</b>

The process configuration value of 7.21 was used to determine the process factor from the table found at 40 CFR 419.22(b) (2). The PF value of 1.29 is applicable for use in the development of the effluent limitations.

Within the Cracking Subcategory, there are five permitting schemes - best practicable pollution control technology (BPT), best available pollution control technology (BAT), best conventional pollution control technology (BCT), pretreatment standards, and new source performance standards (NSPS). For this facility the latter two regulatory schemes are not applicable as the discharges from this facility are treated on site at the facility and not directed to an off site local municipal treatment facility where pretreatment is required. The facility has existed for several decades and is not considered a new source.

The FEG requires a comparison between process wastewater limitations as calculated for the applicable permitting schemes, BPT, BAT, and BCT where the most stringent shall be utilized for calculating the final effluent limitations. The limitations for BPT, BAT, and BCT are found in 40 CFR 419.20, see Table A.

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**Biochemical Oxygen Demand (5-day)**

This parameter is limited per the FEG. Of the three relevant permitting schemes, BOD<sub>5</sub> limits are proposed for both BPT (419.22) and BCT (419.24). The limitations are to be expressed as pounds per 1,000 bbl of feedstock (Mbbbl) and developed considering both the Size and Process Factors.

Per BPT

BOD<sub>5</sub> daily max. = 9.9 #/Mbbbl x 70 Mbbbl x 1.04 (SF) x 1.29 (PF) = **929.73 #/day**  
BOD<sub>5</sub> 30-day avg. = 5.5 #/Mbbbl x 70 Mbbbl x 1.04 (SF) x 1.29 (PF) = **516.52 #/30-day**

Per BAT

No limitations for BOD<sub>5</sub> expressed as BAT.

Per BCT

BPT = BCT.

**Total Suspended Solids**

This parameter is limited per the FEG. Of the three relevant permitting schemes, TSS limits are proposed for both BPT and BCT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

TSS daily max. = 6.9 #/Mbbbl x 70 Mbbbl x 1.04 (SF) x 1.29 (PF) = **647.99 #/day**  
TSS 30-day avg. = 4.4 #/Mbbbl x 70 Mbbbl x 1.04 (SF) x 1.29 (PF) = **413.21 #/30-day**

Per BAT

No limitations for TSS expressed as BAT.

Per BCT

BPT = BCT.

**Total Organic Carbon**

Based on a previous discussion regarding this limiting parameter, it has been determined that the parameter total organic carbon will replace COD as a limiting parameter for Part I.A. of the permit. The limit for TOC will be calculated based on a ratio of 2.2:1 with the applicable BOD<sub>5</sub> limitation.

Per BPT

TOC daily max. = BOD<sub>5</sub> x 2.2 = 9.9 #/Mbbbl x 2.2 = 21.78 #/day  
TOC 30-day avg. = BOD<sub>5</sub> x 2.2 = 5.5 #/Mbbbl x 2.2 = 12.10 #/day

therefore,

TOC daily max. = 21.78 #/Mbbbl x 70 Mbbbl x 1.04 (SF) x 1.29 (PF) = **2045.40 #/day**  
TOC 30-day avg. = 12.10 #/Mbbbl x 70 Mbbbl x 1.04 (SF) x 1.29 (PF) = **1136.34 #/30-day**

**ATTACHMENT 6, continued**  
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Per BAT

COD limitations are provided in this category without accompanying BOD<sub>5</sub> limitations. The allowances of the TOC replacement parameter are provided. Based on a BPJ determination, the BOD<sub>5</sub> BPT/BCT limits will be used for this purpose.

BPT/BCT = BAT

Per BCT

There are no BCT COD limitations set forth in this section.

**Oil & Grease**

This parameter is limited per the FEG. Of the three relevant permitting schemes, O&G limits are proposed for both BPT and BCT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

O&G daily max. = 3.0 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = **281.74 #/day**  
O&G 30-day avg. = 1.6 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = **150.26 #/30-day**

Per BAT

No limitations for O&G expressed as BAT.

Per BCT

BPT = BCT.

**Ammonia (as nitrogen)**

This parameter is limited per the FEG. Of the three relevant permitting schemes, NH<sub>3</sub>-N limits are proposed for both BPT and BAT (419.23). The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

NH<sub>3</sub>-N daily max. = 6.6 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = **619.82 #/day**  
NH<sub>3</sub>-N 30-day avg. = 3.0 #/Mbb1 x 70 Mbb1 x 1.04 (SF) x 1.29 (PF) = **281.74 #/30-day**

Per BAT

BPT = BAT.

Per BCT

No limitations for NH<sub>3</sub>-N expressed as BCT.

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**Sulfide**

This parameter is limited per the FEG. Of the three relevant permitting schemes, sulfide limits are proposed for both BPT and BCT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

Sulfide daily max. =  $0.065 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 6.10 \text{ \#/day}$

Sulfide 30-day avg. =  $0.029 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 2.72 \text{ \#/30-day}$

Per BAT

BPT = BAT.

Per BCT

No limitations for sulfide expressed as BCT.

**Phenolic Compounds (Total Phenols), Total Chromium, Hexavalent Chromium**

Both BPT and BAT limitations are applicable for each of these parameters. For BAT limits' development, a specialized approach is required and will be detailed separately, Table B. Under BPT, non-process specific limitations are provided for each of these limiting parameters. Under BAT, the FEG provide different allowances for each of the internal refining processes known to exist at a particular refinery. The most stringent of the calculated limits shall be utilized as the limiting value for each of these three parameters.

**Total Phenols (phenolic compounds)**

This parameter is limited per the FEG. Of the three relevant permitting schemes, total phenols limits are proposed for both BPT and BAT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

TPhenols daily max. =  $0.074 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 6.95 \text{ \#/day}$

TPhenols 30-day avg. =  $0.036 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = 3.38 \text{ \#/30-day}$

Per BAT - Refer to Table B for detailed calculations required under BAT.

Per the allowances provided under BAT, the calculated limitations are:

TPhenols daily maximum = 11.73 #/day

TPhenols 30-day average = 2.84 #/30-day

Per BCT

No limitations for total phenols expressed as BCT.

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Determination(s)

The TPhenols daily maximum BPT limitation is more stringent (6.35 #/day) than the calculated BAT limit (11.73 #/day). It is a BPJ determination that the BPT daily maximum limitation **(6.95 #/day)** be used as a limiting value.

The TPhenols 30-day average BAT limitation (2.84 #/30-day) is more stringent than the BPT limit (3.28 #/30-day). It is a BPJ determination that the calculated BAT 30-day average limitation **(2.84 #/30-day)** be used as a limiting value.

**Total Chromium**

This parameter is limited per the FEG. Of the three relevant permitting schemes, total chromium limits are proposed for both BPT and BAT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors.

Per BPT

TCr daily max. =  $0.15 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = \mathbf{14.09 \text{ \#/day}}$   
TCr 30-day avg. =  $0.088 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = \mathbf{8.26 \text{ \#/30-day}}$

Per BAT - Refer to Table B for detailed calculations required under BAT

Per the allowances provided under BAT, the calculated limitations are:

TCr daily maximum = 9.59 #/day  
TCr 30-day average = 3.35 #/30-day

Per BCT

No limitations for TCr expressed as BCT.

Determination(s)

The TCr daily maximum calculated BAT limitation is more stringent (9.59 #/day) than the BPT limit (14.09 #/day). It is a BPJ determination that the BPT daily maximum limitation **(9.59 #/day)** be used as a limiting value.

The TCr 30-day average calculated BAT limitation (3.35 #/30-day) is more stringent than the BPT limit (8.26 #/30-day). It is a BPJ determination that the calculated BAT 30-day average limitation **(3.35 #/30-day)** be used as a limiting value.

**Hexavalent Chromium**

This parameter is limited per the FEG. Of the three relevant permitting schemes, HexCr limits are proposed for both BPT and BAT. The limitations are to be expressed as pounds per 1,000 bbl of feedstock and developed considering both the Size and Process Factors described elsewhere in this attachment, and other site specific considerations if appropriate.

Per BPT

HexCr daily max. =  $0.012 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = \mathbf{1.13 \text{ \#/day}}$   
TCr 30-day avg. =  $0.0056 \text{ \#/Mbbbl} \times 70 \text{ Mbbbl} \times 1.04 \text{ (SF)} \times 1.29 \text{ (PF)} = \mathbf{0.53 \text{ \#/30-day}}$

Per BAT - Refer to Table B for detailed calculations required under BAT

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Per the allowances provided under BAT, the calculated limitations are:

HexCr daily maximum = 0.61 #/day

HexCr 30-day average = 0.28 #/30-day

Per BCT

No limitations for HexCr expressed as BCT.

Determination(s)

The HexCr daily maximum calculated BAT limitation is more stringent (0.61 #/day) than the BPT limit (1.13 #/day). It is a BPJ determination that the BPT daily maximum limitation **(0.61 #/day)** be used as a limiting value.

The HexCr 30-day average calculated BAT limitation (0.28 #/30-day) is more stringent than the BPT limit (0.53 #/30-day). It is a BPJ determination that the calculated BAT 30-day average limitation **(0.28 #/30-day)** be used as a limiting value.

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**RATIONALE & SUITABLE DATA**

Outfall 101 PARAMETER SPECIFIC CALCULATIONS FOR CONTAMINATED STORM WATER RUNOFF:

As part of the FEG, under 40 CFR 419.20 for SubPart B (cracking), additional pollutant loading allowances are provided in those cases where the permittee treats contaminated precipitation runoff in addition to process wastewaters generated at the same facility.

A summary of the different permitting schemes (BPT/BAT/BCT) appears in Table C to this attachment.

From the information in Table C the following determinations have been made for the parameters noted below:

**BOD<sub>5</sub>**

BPT daily max. and 30-day avg. limits = BCT daily max. and 30-day avg. limits.  
There are no BOD<sub>5</sub> limits provided for contaminated runoff under BAT.

**TSS**

BPT daily max. and 30-day avg. limits = BCT daily max. and 30-day avg. limits.  
There are no TSS limits provided for contaminated runoff under BAT.

**O&G**

BPT daily max. and 30-day avg. limits = BCT daily max. and 30-day avg. limits.  
There are no O&G limits provided for contaminated runoff under BAT.

**Sulfide and NH<sub>3</sub>-N**

There are no additional pollutant loadings provided under BPT, BAT or BCT of the applicable FEG for these parameters.

**Total Phenols (phenolic compounds) & TOC**

BPT daily max. and 30-day avg. limits = BAT daily max. and 30-day avg. limits.  
There are no TPhenols limits provided for contaminated runoff under BCT.

**Hexavalent Chromium**

BPT daily max. and 30-day avg. limits = BAT daily max. and 30-day avg. limits.  
There are no TPhenols limits provided for contaminated runoff under BCT.

**Total Chromium**

BPT daily max. and 30-day avg. limits are less stringent than the BAT daily max. and 30-day avg. limits.

In this case, the BAT additional pollutant loading allowances will be carried forward for use in permit limit development for total chromium.

There are no TCr limits provided for contaminated runoff under BCT.

The additional pollutant loading allowances for contaminated runoff are developed based on the calculations appearing below. No up-to-date value was provided and the information in the application was copied from previous applications therefore, the amended value applied during the previous reissuance will be applied for these calculations. The contaminated precipitation runoff is 141,207 gallons per day.

The necessary calculations utilize this value of flow, and the BPT, BAT or BCT daily maximum and 30-day average limitations to develop a loading that will be added to the loadings allowed for process wastewater on a parameter-specific basis.

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

Once the process wastewater and contaminated runoff allowances (below) are summed, this total pollutant-specific loading will be the final effluent limitations for outfall 101.

Documented flow of contaminated precipitation runoff = 141,207 gpd.

Additional loading = flow (as 1000 gal/day) X BPT or BAT, or BCT allowance

**BOD<sub>5</sub>**

Daily maximum allowance = 141.207 gpd X 0.40 #/1,000 gpd = 56.48 #/day  
30-day average allowance = 141.207 gpd X 0.22 #/1,000 gpd = 31.06 #/30-day

**TSS**

Daily maximum allowance = 141.207 gpd X 0.28 #/1,000 gpd = 39.54 #/day  
30-day average allowance = 141.207 gpd X 0.18 #/1,000 gpd = 25.42 #/30-day

**O&G**

Daily maximum allowance = 141.207 gpd X 0.13 #/1,000 gpd = 18.36 #/day  
30-day average allowance = 141.207 gpd X 0.067 #/1,000 gpd = 9.46 #/30-day

**TOC**

Daily maximum allowance = 141.207 gpd X 0.88 #/1,000 gpd = 124.26 #/day  
30-day average allowance = 141.207 gpd X 0.48 #/1,000 gpd = 67.78 #/30-day

**Total Phenols (phenolic compounds)**

Daily maximum allowance = 141.207 gpd X 0.0029 #/1,000 gpd = 0.41 #/day  
30-day average allowance = 141.207 gpd X 0.0014 #/1,000 gpd = 0.20 #/30-day

**Hexavalent Chromium**

Daily maximum allowance = 141.207 gpd X 0.00052 #/1,000 gpd = 0.07 #/day  
30-day average allowance = 141.207 gpd X 0.00023 #/1,000 gpd = 0.03 #/30-day

**Total Chromium**

Daily maximum allowance = 141.207 gpd X 0.0050 #/1,000 gpd = 0.71 #/day  
30-day average allowance = 141.207 gpd X 0.0018 #/1,000 gpd = 0.25 #/30-day

**Summary of Tables:**

- Table A: From FEG BPT, BAT, and BCT effluent limitations for calculating process wastewaters,  
Table B: Summary of process wastewater calculations for Total Phenols, Total Chromium, and Hexavalent Chromium based on feedstock capacity for each refinery process per BAT  
Table C: From FEG for use in calculating contaminated storm water run off for BPT, BAT, and BCT  
Table D1: Comparison Chart for most suitable limitations for process wastewaters  
Table D2: Comparison Chart for most suitable limitations for contaminated storm water run off  
Table E: Summation of Process and Run off allowances for final effluent limitations



# UNITED STATES DEPARTMENT OF LABOR

## OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

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### SIC Description for 2911

## Description for 2911: Petroleum Refining

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Division D: ManufacturingMajor Group 29: Petroleum Refining And Related IndustriesIndustry Group 291: Petroleum Refining

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### 2911 Petroleum Refining

Establishments primarily engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, and lubricants, through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, cracking or other processes. Establishments of this industry also produce aliphatic and aromatic chemicals as by-products. Establishments primarily engaged in producing natural gasoline from natural gas are classified in mining industries. Those manufacturing lubricating oils and greases by blending and compounding purchased materials are included in Industry 2992. Establishments primarily re-refining used lubricating oils are classified in Industry 2992. Establishments primarily engaged in manufacturing cyclic and acyclic organic chemicals are classified in Major Group 28.

- Acid oil, produced in petroleum refineries
- Alkylates, produced in petroleum refineries
- Aromatic chemicals, made in petroleum refineries
- Asphalt and asphaltic materials: liquid and solid produced in
- Benzene, produced in petroleum refineries
- Butadiene, produced in petroleum refineries
- Butylene, produced in petroleum refineries
- Coke, petroleum produced in petroleum refineries
- Ethylene, produced in petroleum refineries
- Fractionation products of crude petroleum, produced in petroleum
- Gas, refinery or still oil produced in petroleum refineries
- Gases, liquefied petroleum produced in petroleum refineries
- Gasoline blending plants
- Gasoline, except natural gasoline
- Greases, lubricating: produced in petroleum refineries
- Hydrocarbon fluid, produced in petroleum refineries
- Jet fuels
- Kerosene
- Mineral jelly, produced in petroleum refineries
- Mineral oils, natural: produced in petroleum refineries
- Mineral waxes, natural: produced in petroleum refineries
- Naphtha, produced in petroleum refineries
- Naphthenic acids, produced in petroleum refineries
- Oils, partly refined sold for rerunning produced in petroleum
- Oils fuel, lubricating, and illuminating produced in petroleum
- Paraffin wax, produced in petroleum refineries
- Petrolatums, produced in petroleum refineries
- Petroleum refining

- Propylene, produced in petroleum refineries
- Road materials, bituminous: produced in petroleum refineries
- Road oils, produced in petroleum refineries
- Solvents, produced in petroleum refineries
- Tar or residuum, produced in petroleum refineries

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Occupational Safety & Health Administration  
200 Constitution Avenue, NW  
Washington, DC 20210

**Woodruff, Melinda (DEQ)**

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**From:** Kelley, Jane [Jane.Kelley@wnr.com]  
**Sent:** Thursday, February 04, 2010 3:31 PM  
**To:** Woodruff, Melinda (DEQ)  
**Subject:** Stream Day / Calendar Day Info for VPDES PermitDEQ Permit

Melinda,

Am working on collating the answers to your various questions from our Dec. meeting, but since you indicated this data was your most pressing need, am going ahead and forwarding this to you separately.

Unit	2009
	Stream Day / Calendar Day
Crude Distillation	70.0 / 58.5
Vacuum Tower	50.0 / 37.0
Crude Desalter	70.0 / 58.5
FCCU	29.4 / 26.6
Coker	23.0 / 18.0
Catalytic Reformer	11.8 / 9.9
GDU	25.0 / 12.0

*Jane Kelley*

Western Refining, Yorktown  
 Environmental Manager  
 Phone: (757) 898-9732  
 Cell: (757) 871-1752

**Thomas, Carl**

**From:** Rebecca Gudgeon [rgudgeon@giant.com]  
**Sent:** Tuesday, February 01, 2005 4:16 PM  
**To:** Thomas, Carl  
**Subject:** RE: Precipitation runoff value - contaminated flow

I apologize for not getting back to you yesterday, my little boy was sick and I was "working" from home and didn't have access to everything I needed. After speaking with Pete, it has become obvious that the rainfall value was copied from the last application because it had been copied from the application 10 years ago and it was assumed that it hadn't changed. I researched the area rainfall on several different sites (NOAA for Norfolk, VA, the state Climatologic Board, and the Langley Air Force Base weather station) and found that the more appropriate number would be 43.5 inches of rainfall per year equating to a oily water runoff of 141,207 gallons/day. Please advise how we should go about submitting this change to the permit application; will this e-mail be sufficient or will we have to submit a written change.

Thanks  
Rebecca

-----Original Message-----

**From:** Thomas, Carl [mailto:cdthomas@deq.virginia.gov]  
**Sent:** Tuesday, February 01, 2005 3:38 PM  
**To:** rgudgeon@giant.com  
**Subject:** Precipitation runoff value - contaminated flow

Good Afternoon Ms. Gudgeon,

Finally reached the point where the subject value (0.128222 MGD, or 128,222 gallons/day) appearing in the application's water flow diagram must be confirmed or, an alternate and more representative value be provided to continue with the necessary calculations to develop final Part I.A. effluent limitations for 101.

Request advise status of this value we had discussed late last week.

As of this date, the permit limiting values for only process wastewaters track quite nicely with those of the past, although some numbers are slightly different than past values. Hopefully, the fact sheet will carry enough detail for others to track the development of these limits, etc.

Thanks.

cdthomas@deq.virginia.gov  
757.518.2161

Note: Per DEQ's POLICY STATEMENT NO. 2-2005 v1.0 (& subsequent)  
These mailings may be viewed and retained by others, and are subject to FOIA requests.

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**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**TABLE A -- APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

Due to the peculiarities of the effluent limitations associated with this industrial sector, petroleum refinery, a comparison between the **process wastewaters limitations** is required and the most stringent amongst them shall be utilized in the preparation of the reissued permit. Although not fully detailed in past development documents, a summary of past actions will be set forth in this permit reissuance package. In 40 CFR 419.20 (Sub-Part B - Cracking Subcategory), limitations have been developed for Best Practicable Pollution Control Technology (BPT), Best Available PC Technology (BAT), and Best Conventional PC Technology (BCT). The table below will serve to set forth each of the limited parameters, for each of the three different categories of pollution control technologies addressed by the Federal Effluent Guidelines (FEG).

PARAMETER	BPT Maximum (lbs/1000 bbl feedstock)	BPT 30-Day Avg. (lbs/1000 bbl feedstock)	BAT Maximum (lbs/1000 bbl feedstock)	BAT 30-Day Avg. (lbs/1000 bbl feedstock)	BCT Maximum (lbs/1000 bbl feedstock)	BCT 30-Day Avg. (lbs/1000 bbl feedstock)
Biochemical Oxygen Demand (5-Day)	9.9	5.5	N/A	N/A	9.9	5.5
Total Suspended Solids	6.9	4.4	N/A	N/A	6.9	4.4
(**) Total Organic Carbon (BOD5 x 2.2)	21.8	12.1	21.8	12.1	N/A	N/A
Oil & Grease	3.0	1.6	N/A	N/A	3.0	1.6
Total Phenols (phenolic compounds)	0.074	0.036	***	***	N/A	N/A
Ammonia, as Nitrogen	6.6	3.0	6.6	3.0	N/A	N/A
Sulfide	0.065	0.029	0.065	0.029	N/A	N/A
Total Chromium	0.15	0.088	***	***	N/A	N/A
Hexavalent Chromium	0.012	0.0056	***	***	N/A	N/A
pH	Limited to the range of 6.0 - 9.0 standard units (SU)				Limited to the range of 6.0 - 9.0 standard units (SU)	

- \*\*** Due to the presence of excessive chloride ion concentration in the facility's process wastewater, it is a BPJ determination to utilize TOC as a limiting parameter based on the provisions of the FEG at 40 CFR 419.13(d). The relevant TOC limitation is developed utilizing a 2.2:1 relationship between TOC and BOD5.
- \*\*\*** The FEG for these parameters require a special evaluation of the particular process streams at the facility and the calculations for these proposed limitations will appear on a following page, Table B.

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**TABLE B - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

The information that appears in the table below is a summary of calculations that will yield final effluent limitations for phenolic compounds (total phenols), total chromium and hexavalent chromium. BAT effluent limitations factors are found in 40 CFR 419.23(c)(1)(i). The final BAT limitations are developed considering the feedstock throughput (Mbbbls) in each of five separate process operations typically expected at petroleum refineries. The calculations resulting from considering each of the five categories of activities are additive and will result in a final limit for the refinery, for the substances noted above. Refer to the table where the facility's process configuration is detailed for the permittee's information on feedstock throughput for each of these operations is detailed.

PARAMETERS & BAT LIMITATIONS	CRUDE		CRACKING/COKING		ASPHALT		LUBE		REFORMING		REFINERY TOTALS
	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	MAX	AVG	
Phenolic Compounds	0.013	0.003	0.147	0.036	0.079	0.019	0.369	0.090	0.132	0.032	Daily maximum 11.73 30-Day Average 2.84
Crude Crack/coke Asphalt Lube Reform	Max. 190.0 x 0.013 = 2.47 Avg. 190.0 x 0.003 = 0.57 11.8		Max. 52.4 x 0.147 = 7.70 Avg. 52.4 x 0.036 = 1.89		N/A		N/A		Max. 11.8 x 0.132 = 1.56 Avg. 11.8 x 0.032 = 0.38		
Total Chromium	0.011	0.004	0.119	0.041	0.064	0.022	0.299	0.104	0.107	0.037	Daily maximum 9.59 30-Day Average 3.35
Crude Crack/coke Asphalt Lube Reform	Max. 190.0 x 0.011 = 2.09 Avg. 190.0 x 0.004 = 0.76 11.8		Max. 52.4 x 0.119 = 6.24 Avg. 52.4 x 0.041 = 2.15		N/A		N/A		Max. 11.8 x 0.107 = 1.26 Avg. 11.8 x 0.037 = 0.44		
Hexavalent Chromium	0.0007	0.0003	0.0076	0.0034	0.0041	0.0019	0.0192	0.0087	0.0069	0.0031	Daily maximum 0.61 30-Day Average 0.28
Crude Crack/coke Asphalt Lube Reform	Max. 190.0 x 0.0007 = 0.13 Avg. 190.0 x 0.0003 = 0.06 11.8		Max. 52.4 x 0.0076 = 0.40 Avg. 52.4 x 0.0034 = 0.18		N/A		N/A		Max. 11.8 x 0.0069 = 0.08 Avg. 11.8 x 0.0031 = 0.04		

NOTE: The facility-specific production configuration values appearing in column 1, beneath each limited parameter, were provided by the permittee in an e-mail dated 2/4/10 and is provided in this attachment.

# ATTACHMENT 6

## EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS RATIONALE & SUITABLE DATA

**TABLE C - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101**

Due to the peculiarities of the effluent limitations associated with this industrial sector, petroleum refinery, a comparison between the contaminated storm water runoff limitations (additive to limitations for process wastewaters) is required and the most stringent amongst them shall be utilized in the preparation of the reissued permit. In 40 CFR 419.20 (Sub-Part B - Cracking Subcategory), limitations have been developed for Best Practicable Pollution Control Technology (BPT), Best Available PC Technology (BAT), and Best Conventional PC Technology (BCT). The table below will serve to set forth each of the limited parameters, for each of the three different categories of pollution control technologies addressed by the Federal Effluent Guidelines (FEG).

PARAMETER	BPT Maximum (lbs/1000 gal SW flow)	BPT 30-Day Avg. (lbs/1000 gal SW flow)	BAT Maximum (lbs/1000 gal SW flow)	BAT 30-Day Avg. (lbs/1000 gal SW flow)	BCT Maximum (lbs/1000 gal SW flow)	BCT 30-Day Avg. (lbs/1000 gal SW flow)
Biochemical Oxygen Demand (5-Day)	0.40	0.22	N/A	N/A	0.40	0.22
Total Suspended Solids	0.28	0.18	N/A	N/A	0.28	0.18
(**) Total Organic Carbon (BOD5 x 2.2)	0.88	0.48	0.88	0.48	N/A	N/A
Oil & Grease	0.13	0.067	N/A	N/A	0.13	0.067
Total Phenols (phenolic compounds)	0.0029	0.0014	0.0029	0.0014	N/A	N/A
Ammonia, as Nitrogen	N/A	N/A	N/A	N/A	N/A	N/A
Sulfide	N/A	N/A	N/A	N/A	N/A	N/A
Total Chromium	0.0060	0.0035	0.0050	0.0018	N/A	N/A
Hexavalent Chromium	0.00052	0.00023	0.00052	0.00023	N/A	N/A
pH	Limited to the range of 6.0 - 9.0 standard units (SU)				Limited to the range of 6.0 - 9.0 standard units (SU)	

\*\* Due to the presence of excessive chloride ion concentration in the facility's combined wastewater, it is a BPJ determination to utilize TOC as a limiting parameter based on the provisions of the FEG at 40 CFR 419.13(d). The relevant TOC limitation is developed utilizing a 2.2:1 relationship between TOC and BOD5.

**ATTACHMENT 6**  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

**TABLE D1** - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101  
This table defines the most suitable limitations for treated process wastewater discharges from outfall 101.

PARAMETER	BPT DAILY MAX (lb/day)	BAT DAILY MAX (lb/day)	BCT DAILY MAX (lb/day)	BPT 30-DAY AVG (lb/day)	BAT 30-DAY AVG (lb/day)	BCT 30-DAY AVG (lb/day)	BASIS FOR LIMITS
FLOW (MGD)	N/A	N/A	N/A	N/A	N/A	N/A	NO LIMIT, REPORT BOTH DAILY MAXIMUM AND MONTHLY AVERAGE FLOW VALUES
pH (SU), limited range	6.0 - 9.0	N/A	6.0 - 9.0	6.0 - 9.0	N/A	6.0 - 9.0	LIMITED TO RANGE OF 6.0 - 9.0 SU - BPT
BOD <sub>5</sub>	929.73	N/A	BPT = BCT	516.52	N/A	BPT = BCT	BPT
TSS	649.99	N/A	BPT = BCT	413.21	N/A	BPT = BCT	BPT
TOC	2045.40	BPT/BCT	N/A	1136.34	BPT/BCT	N/A	BPT
O & G	281.74	N/A	BPT = BCT	150.26	N/A	BPT = BCT	BPT
AMMONIA-N	619.82	BPT = BAT	N/A	281.74	BPT = BAT	N/A	BPT
SULFIDE	6.10	BPT = BAT	N/A	2.72	BPT = BAT	N/A	BPT
PHENOLIC COMPOUNDS	6.95	<del>11.73</del>	N/A	<del>3.38</del>	2.84	N/A	BPT for Maximum BAT for Average
TOTAL CHROMIUM	<del>14.09</del>	9.59	N/A	<del>8.26</del>	3.35	N/A	BAT
HEXAVALENT CHROMIUM	<del>1.13</del>	0.61	N/A	<del>0.53</del>	0.28	N/A	BAT

**ATTACHMENT 6**  
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS  
RATIONALE & SUITABLE DATA

**TABLE D2** - APPLICABLE EFFLUENT LIMITATIONS AND DEVELOPMENT OF FINAL PART I.A. VALUES - OUTFALL 101  
This table defines the most suitable limitations for discharges of treated precipitation runoff from outfall 101.

PARAMETER	BPT DAILY MAX (lb/day)	BAF DAILY MAX (lb/day)	BCT DAILY MAX (lb/day)	BPT 30-DAY AVG (lb/day)	BAT 30-DAY AVG (lb/day)	BCT 30-DAY AVG (lb/day)	BASIS FOR LIMITS
FLOW (MGD)	N/A	N/A	N/A	N/A	N/A	N/A	NO LIMIT, REPORT BOTH DAILY MAXIMUM AND MONTHLY AVERAGE FLOW VALUES
pH (SU), limited range	6.0 - 9.0	N/A	6.0 - 9.0	6.0 - 9.0	N/A	6.0 - 9.0	LIMITED TO RANGE OF 6.0 - 9.0 SU - BPT
BOD <sub>5</sub>	56.48	/A	BPT = BCT	31.06	N/A	BPT = BCT	BPT
TSS	39.54	N/A	BPT = BCT	25.42	N/A	BPT = BCT	BPT
TOC	124.26	BPT/BCT	N/A	67.78	BPT/BCT	N/A	BPT
O & G	18.36	N/A	BPT = BCT	9.46	N/A	BPT = BCT	BPT
AMMONIA-N							No additional allowance
SULFIDE							No additional allowance
PHENOLIC COMPOUNDS	0.41	BPT = BAT	N/A	0.20	BPT = BAT	N/A	BPT
TOTAL CHROMIUM	<del>0.05</del>	0.71	N/A	<del>0.49</del>	0.25	N/A	BAT
HEXAVALENT CHROMIUM	0.07	BPT = BAT	N/A	0.03	BPT = BAT	N/A	BPT

**ATTACHMENT 6**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**TABLE E - PROPOSED FINAL EFFLUENT LIMITATIONS AT OUTFALL 101 - (Summation of Process and Runoff allowances)**  
 In accordance with DEQ guidance Memorandum 06-2016 (dtd 11/02/06), the final limitations will be rounded off in a manner consistent with this established permit development protocol.

PARAMETER	PROCESS DAILY MAX	RUNOFF DAILY MAX	PART I.A. DAILY MAX	PROCESS 30-DAY AVERAGE	RUNOFF 30-DAY AVERAGE	PART I.A. 30-DAY AVERAGE
FLOW (MGD)	No Limit	NL	NL	NL	NL	NL
pH (SU)		N/A	6.0 - 9.0			6.0 - 9.0
BOD5 (#/unit time)	929.73	56.48	(986.21) ⇨ 990	516.52	31.06	(547.58) ⇨ 550
TSS (#/unit time)	647.99	39.54	(687.53) ⇨ 690	413.21	25.42	(438.63) ⇨ 440
TOC (#/unit time)	2045.40	124.26	(2169.66) ⇨ 2200	1136.34	67.78	(1204.12) ⇨ 1200
O & G (#/unit time)	281.74	18.36	(300.10) ⇨ 300	150.26	9.46	(159.72) ⇨ 160
AMMONIA-N (#/unit time)	619.82	0	(619.82) ⇨ 620	281.74	0	(281.74) ⇨ 280
SULFIDE (#/unit time)	6.10	0	(6.10) ⇨ 6.1	2.72	0	(2.72) ⇨ 2.7
TOTAL PHENOLS (#/unit time)	6.95	0.41	(7.36) ⇨ 7.4	2.84	0.20	(3.04) ⇨ 3.0
TOTAL CHROMIUM (#/unit time)	9.59	0.71	(10.3) ⇨ 10	3.35	0.25	(3.60) ⇨ 3.6
HEXAVALENT CHROMIUM (#/unit time)	0.61	0.07	(0.68) ⇨ 0.68	0.28	0.03	(0.31) ⇨ 0.31

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**Outfall 102**

Outfall 102 is permitted for discharge of once-through cooling water and reused water. The once-through cooling water is treated with a form of chlorine/bromide disinfection in order to control bio-fouling of the distribution system throughout the facility's process operations.

Prior to discharge, the wastewater is directed to a large circular basin for temperature equalization. At times, the permittee may redirect up to 5% of this equalized wastewater into an adjacent multi-cell sedimentation basin that receives precipitation runoff from areas that are expected to be free of contamination by petroleum products or associated residues or pollutants. The purpose for this action is to ensure that a minimum level of flow is present in this sedimentation basin at all times. If non-contact cooling water becomes contaminated by coming in to contact with any petroleum products, this condition would be readily detected by the inspection program in place at the facility.

The permittee submitted a model on the affects of the thermal discharge on the receiving stream in June of 1994 (applicable reference is enclosed). This model considered the wastewater flow and the expected ambient characteristics of the receiving stream at critical conditions. The Department accepted the model and resulting temperature limitation of 44°C. Based on BPJ and the fact that the activity and expected characteristics of the receiving stream have not changed significantly since the determination, the current temperature limitation will remain at 44°C. However, during the next reissuance if the discharge flow increases, the permittee should be requested to perform an update on the study.

The FEG under BPT, BAT and BCT, all reference non-contact cooling water.

Per BPT and BAT (40 CFR 419.22(d) and 419.23(e)):

"The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section. Once-through cooling water may be discharged with a total organic carbon concentration not to exceed 5 mg/l."

Per BCT (40 CFR 419.24(d)):

"The quantity and quality of pollutants or pollutant properties controlled by this paragraph, attributable to once-through cooling water, are excluded from the discharge allowed by paragraph (b) of this section."

Basically, the numeric effluent limitations required for process wastewaters and contaminated precipitation runoff are not to be imposed on once-through cooling water with the exception of total organic carbon (TOC). This has been the approach in previous issuances based on the FEG and BPJ in that the permittee has no control over the TOC content of the source water (York River). In Virginia, the use of net limitations is allowed in similar situations (see 9 VAC 25-31-230 G).

Flow:                    There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

- Temperature: A daily maximum of 44°C. Monitoring required is continuous with Immersion Stabilization. This is based on BPJ and Water Quality Standards, where thermal discharges are released to state waters need to be protective of the receiving stream after complete mix.
- TOC A daily maximum limit of 5mg/l. Monitoring required is a 24 Hr. composite sample 1/Week. This is based on BPJ and the FEG for BPT, BAT and BCT. This approach was taken during the last permit reissuance and no changes are made for this reissuance.
- Fecal  
Coliform: A monthly average limit of 200 n/cml. Monitoring required is a grab sample 2/Month. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Current guidance requires fecal coliform monitoring in salt or transition waters if the discharge is to shellfish waters. BPJ determines that this frequency is adequate to determine compliance with the standard.
- Enterococci: A monthly average limit of 35 n/cml. Monitoring required is a grab sample 2/Month. This is based on water quality standards (9 VAC25-260-160).

**Outfall 002**

Outfall 002 is permitted to discharge precipitation from runoff associated with industrial activity, diverted flows from Outfalls 101 and/or 102, fire main wastewaters, uncontaminated wastewaters from hydrostatic testing (outfall 201), and reuse water.

Uncontaminated runoff is not addressed in the FEG and permitting activities have not changed since the previous reissuance therefore based on BPJ and review of the data, the limitations and monitoring parameters will continue for this outfall for this reissuance.

- Flow: There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.
- pH: The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with monitoring 1/Week requirements. This requirement is based BPJ and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

TOC                   The maximum daily limit is 35 mg/l with monitoring 1/Week. The applicable limit in the FEG is 110 mg/l for a certain class discharge. However, the permittee readily meets the current limit and to increase this value would cause an anti-backsliding issue. Based on BPJ and to protect the current water quality of the receiving stream the current limit will continue for this reissuance.

Oil and Grease:   The maximum daily limit is 15 mg/l with reporting only for monthly average. Monitoring is 1/week. Based on the possibility of petroleum contamination from any of the inputs to the system, the FEG recommends a limitation of 15 mg/l. Based on BPJ and to protect the current water quality of the receiving waters, this limit will continue for this reissuance.

Temperature:       A daily maximum of 44°C. Monitoring required is continuous with Immersion Stabilization. This is based on BPJ and Water Quality Standards, where thermal discharges are released to state waters need to be protective of the receiving stream after complete mix.

Total  
Phosphorus:       The monthly average limit of 2.0 mg/l and reporting only for daily maximum. Monitoring is 1/Month. This is based on antibacksliding regulations, BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on receiving waters since the refinery process would generate compounds that contain phosphorus.

Total Arsenic:     There is no limit on Arsenic and reporting only for monthly average and daily maximum. Monitoring is 1/Month. This is based on BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on the receiving waters since the refinery is constructing and managing CAMUs during this permit term.

Total Cadmium:     There is no limit on Cadmium and reporting only for monthly average and daily maximum. Monitoring is 1/Month. This is based on BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on the receiving waters since the refinery is constructing and managing CAMUs during this permit term.

Total Chromium:    There is no limit on Chromium and reporting only for monthly average and daily maximum. Monitoring is 1/Month. This is based on BPJ to protect water quality and is believed necessary to evaluate the potential impact of the discharge on the receiving waters since the refinery is constructing and managing CAMUs during this permit term.

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

Fecal

Coliform: A monthly average limit of 200 n/cml. Monitoring required is a grab sample 2/Month. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Current guidance requires fecal coliform monitoring in salt or transition waters if the discharge is to shellfish waters. BPJ determines that this frequency is adequate to determine compliance with the standard.

Enterococci: A monthly average limit of 35 n/cml. Monitoring required is a grab sample 2/Month. This is based on water quality standards (9 VAC25-260-160).

**Outfall 201**

This outfall is permitted for hydrostatic test water and is an internal discharge to Outfall 002. The hydrostatic test waters are generated from integrity testing that may be performed on tanks, piping and other similar structures at the facility where no petroleum product residues or other sources of contaminants in the water are suspected to be present. The DEQ toxicity guidance document 00-2012 requires toxicity monitoring for all hydrostatic test waters. Toxicity monitoring has been added for the hydrostatic discharges, see Attachment 8.

Due to the infrequency of the hydrostatic testing, monitoring will be annually rather than monthly based on BPJ for this permit term.

Wastewaters from hydrostatic test water is not addressed in the FEG and permitting activities have not changed since the previous reissuance however internal guidance (VPDES permit manual) has changed for two parameters, Total Xylenes and Naphthalene and those parameter limitations are more stringent. Based on BPJ and review of the data, the limitations and monitoring for the remaining parameters will continue for this outfall for this reissuance.

Flow: There is no limit on flow. Monitoring is 1/Year with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH: The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with monitoring 1/Year requirements. This requirement is based BPJ and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**Total Petroleum**

**Hydrocarbons:** The maximum daily limit is 15 mg/l with monitoring is 1/Year. Based on the possibility of petroleum contamination from any of the inputs to the system, the FEG recommends a limitation of 15 mg/l. Based on BPJ and to protect the current water quality of the receiving waters, this limit will continue for this reissuance.

**Benzene:** The maximum daily limit is 50 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for this type of industrial operations and is consistent with relevant DEQ guidance.

**Toluene:** The maximum daily limit is 175 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for this type of industrial operations and is consistent with relevant DEQ guidance.

**Ethylbenzene:** The maximum daily limit is 320 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for this type of industrial operations and is consistent with relevant DEQ guidance.

**Total Xylenes:** The maximum daily limit is 33 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is more stringent than the previous limit of 82 ug/l. This standard for this type of industrial operations and is consistent with new relevant DEQ guidance.

**Naphthalene:** The maximum daily limit is 10 ug/l with monitoring 1/Year. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is more stringent than the previous limit of 62 ug/l. This is standard for this type of industrial operations and is consistent with new relevant DEQ guidance.

**Total Residual  
Chlorine:**

There is no limit on Total Residual Chlorine. Daily maximum monitoring reporting is 1/Year. The limit based on relevant DEQ guidance was removed during the last permit reissuance because the outfall is an internal point of discharge with the understanding that the permittee may not utilize potable water for this purpose as there are other sources of non-potable water available to test petroleum product storage and transfer equipment. There is no change for this parameter for this issuance.

**ATTACHMENT 6, continued**  
**EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**  
**RATIONALE & SUITABLE DATA**

**Outfall 004**

Outfall 004 is permitted to discharge wastewater associated with fire main flushing and freeze protection at the offshore pier where tank vessels and barges moor during petroleum product transfer activities. Due to the dangers inherent with this industrial activity, the pier is fitted with fire-fighting stations and other supplies of water to this location. In order to properly operate the site, discharges of wasted fire main flush water periodically occur. During the winter months, a number of connections are allowed to discharge small amounts of water for freeze protection.

Reclamation and reuse waters are used for this process as the schematics submitted for this application illustrate and therefore bacteriological limits will apply to this outfall. This is a change from previous permit issuances where no monitoring requirements of effluent limitations applied to this outfall.

Flow:                    There is no limit on flow. Monitoring is 1/Week with monthly average and daily maximum reporting requirements. The basis for this is BPJ and is believed necessary to evaluate the potential impact of the discharge on receiving waters. This is standard for industrial operations and no change from the previous permit.

pH:                     The minimum limit is 6.0 s.u. and the maximum limit is 9.0 s.u. with monitoring 1/Week requirements. This requirement is based BPJ and the Water Quality Standards (9 VAC-260-50) to protect the Coastal Waters of the State. These limits and monitoring frequency are standard for industrial operations and no change from the previous permit.

Fecal

Coliform:              A monthly average limit of 200 n/cml. Monitoring required is a grab sample 2/Month. This is based on Water Quality Standards (9 VAC 25-260-160) and is believed protective of instream standards. Current guidance requires fecal coliform monitoring in salt or transition waters if the discharge is to shellfish waters. BPJ determines that this frequency is adequate to determine compliance with the standard.

Enterococci:          A monthly average limit of 35 n/cml. Monitoring required is a grab sample 2/Month. This is based on water quality standards (9 VAC25-260-160).

## **1.0 Introduction**

This Revised Corrective Measures Implementation Work Plan (CMI WP) presents information used to develop and plan Corrective Action measures for impacted media at the Western Yorktown Refinery (Refinery) located at 2201 Goodwin Neck Road, Yorktown, Virginia. Western Refining (Western) is submitting this revised CMI WP in order to incorporate refinements and/or modifications to the CMI WP dated 25 October 2007 based on conditions encountered in the field to date and recent meetings/correspondence with the United States Environmental Protection Agency Region III (USEPA). This document is based on previously submitted documents prepared for the Refinery by its outside consultants including The RETEC Group Inc., its affiliates and parent company.

### **1.1 Site Background and History**

Figure 1 illustrates the refinery location on the Goodwin Neck Peninsula and its surrounding regional geographic features. The Refinery occupies approximately 600 acres of land bordered by the York River to the north, by Back Creek to the south, by Dominion Power station to the west, and by Bull Creek Pond (BCP) and a York River tidal salt marsh area to the east. The Refinery began its operations in 1956 and was previously owned by Amoco Oil until 1999 and then BP Products North America, Incorporated (BP) until 14 May 2002. The Refinery was then owned by Giant Industries Arizona, Inc. and operated as Giant Yorktown, Inc., a wholly-owned subsidiary of Giant Industries, Inc. Western Refining, Inc. acquired all the stock of Giant Industries, Inc. on 31 May 2007 and as a result of this merger, the Refinery is now Western Refining Yorktown, Inc.

The Refinery produces unleaded gasoline, diesel fuels, liquefied petroleum gas, butane, furnace oil, petroleum coke, and sulfur. Currently, the Refinery has the capacity to refine approximately 62,000 barrels of crude oil per day.

On 31 October 1991 the USEPA and BP entered into a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Corrective Measures Study (CMS) Final Administrative Order on Consent (RFI/CMS Order). The RFI/CMS Order provides the framework for investigating the extent of hazardous waste and/or hazardous compounds in soils, sediments, groundwater, and surface water from Refinery operations.

The contaminants of concern (COCs) were identified in the RFI Report and referenced in the CMI Consent Order (Section IV-F). The COCs include volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), phenols, and heavy metals such as arsenic, chromium, and cadmium. The USEPA determined that remediation was required to address these contaminants. The CMS conducted for the

site provided an evaluation of clean-up alternatives based on criteria set forth in the RFI/CMS Order.

The Refinery filed an application for a Corrective Action Management Unit (CAMU) under the 1993 CAMU Rule, grandfather status. This corrective action remedy was proposed in the BP Amoco (Giant) Yorktown Refinery Statement of Basis issued by the USEPA on 5 November 2003 pending a 30-day public comment period, and finalized with the Final Decision and Response to Comments (FDRTC) on Proposed Corrective Measures under RCRA Section 3008(h) issued by the USEPA on 31 March 2004. The RCRA Section 3008(h) CMI Final Administrative Order on Consent (CMI Order) became effective on 18 August 2006.

## **1.2 CMI Work Plan Purpose**

The purpose of this CMI WP is to present appropriate corrective action(s) that will protect human health and the environment via controlling regulatory documents including but not limited to the CMI Order, Attachment A - CMI Scope of Work, Statement of Basis for Proposed Corrective Measures, and the FDRTC.

This revised CMI WP includes the following:

- Summary of investigation and design submittals conducted to date;
- Summary of corrective measures construction conducted to date;
- Corrective action objectives and performance standards;
- Summary of the conceptual design for CAMU West;
- Summary of the groundwater remediation methods that will be considered at the Refinery in order to meet the Corrective Action Objectives;
- Schedule of milestones for design, construction, and completion of the proposed Phase II corrective measures implementation;
- Schedule of milestones for groundwater monitoring, source removal;
- Groundwater remedy support tasks;

## **2.0 Site Description and Existing Conditions**

### **2.1 Local Geology**

Numerous borings have been installed across the Refinery, and the results indicate that the stratigraphy underlying the Refinery consists of three lithostratigraphic units: 1) surficial artificial fill material and surficial alluvial and marsh deposits of Holocene age, 2) the late Pleistocene-age Lynnhaven Member of the Tabb Formation, and 3) the Yorktown Formation of Pliocene age. An erosional unconformity separates the Tabb and Yorktown Formations and four formations have apparently been eroded away, including the Shirley, Chuckatuck, Windsor, and Bacons Castle.

### **2.2 Local Lithology**

The surface and uppermost shallow soil encountered at the Refinery include Tabb Formation sediments and backfill soil material. The fill material is observed primarily in four areas of the Refinery and laterally extends over approximately one-fifth of the developed portion of the Refinery.

Fill materials were emplaced during the Refinery's initial construction phase when low lying areas such as drainage swales and channels were backfilled to prepare a more level surface suitable for site development. Fill thickness varies across the site with estimates indicating up to 12 feet of fill present in deeper channels.

Fill material used in construction of the Refinery was dredged from the bottom of the York River and considered displaced Yorktown Formation sediments (Extent and Rate of Contaminant Migration and Hydrogeologic Report, The Earth Technology Corporation, 1988). These sediments are heavily weathered yet exhibit the distinctive molluscan shell fragments and glauconitic mineralogy characteristic of the Yorktown Formation. The material generally is described as a green medium sand with shell fragments to an olive brown or gray fine-medium-coarse sand, well sorted, little to trace silt and clay, and abundant shell fragments. Relative to the underlying native (undisturbed) Tabb Formation sediments, the fill material often is coarser, better sorted, and less compact.

Sediments of the Tabb Formation are laterally adjacent and underlie the surficial fill material as the fill was placed into topographic depressions on the surface of the Tabb Formation. These sediments are light gray to orange, mottled quartz sands, sandy clays, and clayey sands. The Tabb Formation unconformably overlies the Yorktown Formation, and the basal sediments of the Tabb contain trace amounts of mica and glauconite, suggesting the reworking of the underlying Yorktown sediments. The basal portion of the Tabb Formation may act as a semi-confining layer. Tabb Formation sediments at the site range in thickness from approximately 8 to 34 feet. The thickness

of the Tabb Formation at the western portions and center of the Refinery appears to be fairly uniform, generally about 20 feet and equally divided between the upper sandy unit and the lower silty clayey unit.

The underlying Yorktown Formation occurs at depths ranging from approximately 20 to 35 feet below ground surface (bgs) across the site and consists of gray to green, fine-grained sand, with abundant shell fragments and varying amounts of silt and clay that decrease with depth. These sediments are composed of subangular quartz, minor amounts of glauconite, trace mica, feldspar, and molluscan fossils. Yorktown Formation sediments are defined as a clean, fine sand with occasional beds of silt and clayey sand. No borings completed during Refinery investigations have penetrated the entire thickness of the Yorktown; most deep borings having been completed to a depth of approximately 60 feet bgs with the deepest boring advanced to a depth of approximately 100 feet bgs.

## **2.3 Local Hydrogeology**

The shallow groundwater system in York County consists of the unconfined Columbia aquifer and two confined aquifers. Locally, either the Cornwallis Cave confining unit and/or the Yorktown confining unit can be missing. In the vicinity of the Refinery, the Cornwallis Cave and Yorktown-Eastover aquifers merge to form the YCS aquifer system in the absence of the Yorktown confining unit. The various geologic units have been grouped, based on their ability to transmit water, into three hydrogeologic units: 1) the Columbia aquifer, 2) the Cornwallis Cave confining unit, and 3) the YCS aquifer system.

The Columbia aquifer is unconfined and occurs within the artificial fill, surficial deposits, and the more permeable sandy fluvial and estuarine sediments of the Tabb Formation. This aquifer begins at the water table, approximately 4 to 6 feet bgs, and is approximately 5 to 25 feet thick. The unconfined conditions of this aquifer allow it to rise and fall in response to seasonal variations in recharge and discharge.

Some of the fill areas are perennially water saturated and as such are incorporated into the Columbia aquifer. Given that fill material was emplaced into former surface drainage pathways, groundwater in the Columbia aquifer would be expected to exhibit some enhanced flow along the fill channels.

The Cornwallis Cave confining unit consists of basal sediments of the Tabb Formation and may contain reworked sediments of the upper Yorktown Formation. The Cornwallis Cave confining unit is likely a semi-confining layer impeding, but not completely isolating, groundwater flow from the Columbia aquifer to the deeper YCS aquifer system. The YCS aquifer system underlies the Columbia aquifer and Cornwallis Cave confining unit and is approximately 100 feet thick on Goodwin Neck.

## **2.4 Investigations Conducted to Date**

The investigations that have been conducted at the Refinery have been implemented in a phased approach. Figure 2 provides a site plan of the refinery illustrating the locations of the Solid Waste Management Units (SWMUs), Area of Concern (AOC), existing CAMU East and the proposed CAMU West.

### **2.4.1 Primary Investigations and Reports**

- **Phase I RCRA Facility Investigation Work Plan** (RETEC, 1992) described the approach to RFI activities and included a Project Management Plan, a Data Collection and Quality Assurance (QA) Plan, a Data Management Plan, and a Community Relations Plan (CRP). This work plan was submitted in June 1992.
- **Preliminary Ecological Assessment** (RUST Environment & Infrastructure) was submitted in May 1994.
- **Site-Specific Health and Safety Plan (HASP)** (RETEC, 1994) documented the procedures taken at the site to maintain high standards of safety while performing the Phase I investigation, and was submitted in January 1994.
- **Phase I RFI Report** (RETEC, 1997) presented the results of the Phase I RFI investigation and a preliminary risk assessment, and was submitted in January 1997. This report presented the investigation of nine SWMUs and one AOC, a preliminary ecological risk assessment, and the establishment of a site conceptual model. The Phase I RFI did not include the investigation of SWMUs that are regulated under separate agreements and will be closed as regulated units. These included SWMU 1 (Landfarm 10), SWMU 3 (Landfarm 12), and SWMU 4 (IWL Sites A and B).
- **Sampling and Analysis Plan (SAP)** (ThermoRetec, 1999) provided detailed information on field procedures for the Phase II RFI and the interim period of time following the completion of the Phase II investigation and the approval of the Phase II RFI Report and was submitted in September 1999. The SAP is a supporting document to the Phase II RFI Work Plan and provided a reference guide to conduct field activities, which included sampling of groundwater, surface water, sediment, soil, and benthic fauna. In addition, the SAP provided methods for installation and development of permanent and temporary wells/piezometers, and slug testing procedures. These field activities were augmented by detailed lists of supporting supplies and materials, standard operating procedures (SOPs), where applicable, and field forms for documentation purposes.
- **Phase II RFI Work Plan** (ThermoRetec, 1999) provided detailed information on the investigation approach and updated the original Project Management Plan (approved December 1999). The Quality Assurance Project Plan (QAPjP) and HASP that were prepared for the first phase of the investigation were revised and resubmitted with the Phase II RFI Work Plan.

- **Modified Closure Plan, Landfarms 10 and 12** (ThermoRetec, 1999) was submitted in December 1999 and was approved by May 1999. The Closure Plan presented clean closure; CAMU operation, closure, and post-closure; and contingent closure and post-closure plans. This document was prepared as a modification to the January 1990 Approved Closure Plan for Land Treatment Units at the Amoco Yorktown Refinery [Virginia Department of Environmental Quality (VDEQ)], 1990) and replaced that document in its entirety. This Closure Plan modified the 1990 approved plan to: 1) redefine the clean closure performance standards in terms of human health risk, 2) allow a combination of clean closure and closure with waste in place in different sections of the landfarms, 3) describe the designation of a proposed CAMU on the landfarms prior to closure, and 4) specify construction of a hybrid cap with geosynthetic membrane for contingent closure (in the event a CAMU is not utilized).
- **Phase II RFI Ecological Assessment – SAP Addendum** (RETEC, 2000) summarized field work that was conducted to complete original RFI Work Plan requirements for ecological work and to implement additional ecological field work. The additional/revised field work was described in this Addendum.
- **Phase II RFI Report** (RETEC, 2000) was submitted in November 2000, and revised 1 October 2001. The overall purpose of the Phase II RFI was to define the nature and extent of contamination resulting from releases from the SWMUs and AOC. This report described the sampling and analytical techniques used to characterize and define the extent of contaminant releases from SWMUs and AOCs, reviewed data quality, presented the chemical and other physical, ecological, regional, and site data, confirmed contaminant sources, identified human and ecological constituents of interest, and described conclusions and recommendations for continuing with the corrective action process. In August 2000, USEPA and BP agreed to delay the risk assessment (originally proposed to be completed with this report) until potential data gaps could be addressed.
- **Phase II RFI Addendum** (RETEC, 2001) summarized data gaps that were identified during the Phase II RFI.
- **Corrective Measures Implementation Work Plan** (RETEC, 2002) was submitted in February 2002. Revised versions of the CMI WP were subsequently submitted in January 2007, April 2007, June 2007, and October 2007. The CMI WP is designed to describe the process that will be used to implement the corrective measures selected by the USEPA in the FDRTC as it pertains to the Refinery.
- **Supplemental Investigation Work Plan** (RETEC, 20002) was submitted in May 2002 and proposed field work to be conducted to obtain a better understanding of groundwater flow across the site, to better characterize the source and extent of non-aqueous phase liquid (NAPL) in known and unknown areas, complete delineation of groundwater impacts in both NAPL and non-NAPL areas, identify sources of acetone present at the site, and complete the RFI process.

- **Acetone Source Investigation Report** (RETEC, 2004) was submitted in April 2004 and presented information to explain the presence of acetone in groundwater samples.
- **SWMU 7 Investigation Report** (RETEC, 2004) was submitted in June 2004 and presents the results of an investigation conducted on the two SWMU 7 impoundments [equalization basin (EQB)] and storm water retention pond (SWRP)] that was conducted to complete the design for excavation of sludge from the EQB and SWRP. The investigation activities included: 1) conducting modified standard penetration tests to determine the firmness of the impoundment bottoms, 2) collecting soil samples for geotechnical tests to determine if materials beneath the sludge were competent for standard or low ground pressure excavators, 3) collecting soil samples for chemical analysis to determine the extent of impacts to soil beneath the sludge, and 4) information to respond to USEPA's June 2002 comment on the soil portion of the Human Health Risk Assessment (RETEC, 2001) as it relates to SWMU 7 and construction worker health and safety for the future excavation and remediation activities.
- **SWMU 6 Investigation Work Plan** (RETEC, 2006) was submitted in 2006 and proposed investigation activities to be performed in order to fill three main data gaps at SWMU 6: 1) saturated zone soil characterization, 2) surficial soil horizontal delineation, and 3) groundwater assessment.
- **Supplemental Investigation Report** (RETEC, 2007) summarized the results of this field work, and was submitted in July 2007.
- **SWMU 6 Investigation Report** (RETEC, 2007) was submitted and included a Human Health Risk Assessment for SWMU 6. This report presented the results of the SWMU 6 investigation and included recommendations for excavation.

#### 2.4.2 SWMU and CAMU Design Work Conducted To Date

- **35% Design Report SWMU Remediation and CAMU Construction** (RETEC, 2002) was submitted in May 2002 and presented the design to guide the corrective actions required to mitigate impacts resulting from releases to the environment from several SWMUs and one AOC. The design presents the corrective measures to be implemented, including excavation of SWMUs and the AOC, and construction of the CAMU that would be used to manage excavated remediation wastes. This design was proposed to be completed in a single phase.
- **Revised CAMU Application** (RETEC, 2002) was submitted in November 2002 and provided information that enabled the Regional Administrator to designate a CAMU at the Refinery. This document included information on the remedial approach, including performance and design requirements of a CAMU, and a

general design description which included preparation of the CAMU, waste processing and placement, information on the CAMU cover, a stability analysis and storm water management information.

- **Design Input Investigation Work Plan** (RETEC, 2004) was submitted in June 2004 and presented field work that was conducted to supplement the 95% Design for SWMU excavation/CAMU construction work, and included a supplemental geotechnical analysis, berm stability analysis, cover stability analysis, CAMU limits determination, dredge spoil volume estimate, and delineation of non-aqueous phase liquid (NAPL) at well C-6 located in the northwest corner of CAMU West.
- **Stormwater Modeling Report** (RETEC, 2004) presented a comprehensive hydrologic model of storm water flow at the Refinery and supported the SWMU excavation/CAMU construction design. This report included associated modifications to the Refinery-wide storm water management system. The report reflected site conditions that are anticipated following construction of the CAMU to establish storm water settling basin hydraulics including capture of runoff from the CAMU cap and from restored SWMU excavation areas.
- **Design Input Investigation Report** (RETEC, 2005) presented the results from the design input investigation field work and was submitted in February 2005.
- **Design Basis Memorandum, Oily Water Sewer Reroute** (RETEC, 2005) was submitted in February 2005 and presented the design basis for rerouting portions of the below ground oily water sewer (OWS) in support of the proposed corrective action work. Because portions of the OWS lie within SWMU excavation areas and CAMU construction areas, it was necessary to abandon, reroute, or restore portions of the OWS.
- **95% Design Documents** (RETEC, 2005) were prepared to support the proposed SWMU excavation and CAMU construction. At this stage the design included a Performance Monitoring Plan (PMP), a Construction Quality Assurance Project Plan (CQAP) for CAMU construction and SWMU remediation, the Technical Specifications for the CAMU construction and SWMU remediation, a Response to USEPA Comments on 35% CAMU Design Report, a transmittal letter to the USEPA for the nine documents for the 95% Design Documents, and 95% Design Drawings. These were submitted in March 2005. This design was proposed to be completed in four phases.
- **Technical Specifications Oily Water Sewer Reroute** (RETEC, 2007) was submitted in May 2007.
- **OWS Reroute Construction Report** (ENSR, 2008) documented the work that was completed during the OWS reroute and was submitted in June 2008.
- **100% Design Documents** (RETEC, 2007) which included the 100% Design Drawings, Revised Performance Monitoring Plan, Revised Construction Quality Assurance Plan for CAMU construction and SWMU remediation, Revised

Technical Specifications for the CAMU Construction and SWMU Remediation, Design Input Investigation Report Addendum, Perimeter Air Monitoring Plan (PAMP). These were submitted in March 2007 to the USEPA. This design was proposed to be completed in four phases.

- **Revised 100% Design Documents** (RETEC, 2007) included the revised PMP, revised CQAP, and revised Technical Specifications for the CAMU construction and SWMU remediation and were submitted in August 2007.
- **Oily Water Sewer Cleaning Inspection Repair Work Plan** (RETEC, 2008) was submitted in January 2008, and describes the proposed activities to address infiltration that was observed during an inspection and cleaning of a portion of the below ground sewer that was conducted in 2001. The cleaning, inspection and repair (CI&R) activities satisfy certain requirements of the CMI SOW, the FDTRC, and Statement of Basis. The CI&R activities are planned to start with the second phase of the SWMU excavation/CAMU construction work.

#### **2.4.3 Groundwater Design Work Conducted To Date**

- **Closure/Post Closure Groundwater Monitoring, Landfarms 10 and 12, Sampling and Analysis Plan** (RETEC, 1995) provided guidelines for groundwater sampling during and following closure of the landfarms, and was submitted in August 1995.
- **Phytoremediation/Hydraulic Control Pilot Study Approach** (RETEC, 2002) was submitted in May 2002 and presented a proposed groundwater remediation approach for several impacted areas of the Refinery.
- **CAMU Appendix C, Groundwater Management Plan (GWMP)** (RETEC, 2003) was submitted in September 2003, as an appendix to the CAMU Application. This groundwater monitoring plan describes the monitoring program that will be implemented during the operational period of the Yorktown CAMU and the closure/post-closure period of the regulated units. The objectives of the groundwater monitoring program were designed to serve as a protective measure to ensure that CAMU operations will not negatively impact existing groundwater quality.
- **Initial Network of CAMU Monitoring Wells** were installed in April 2001. Nine pairs of wells were installed on the perimeter of the CAMU, with one of the well pair installed into the upper aquifer (approximately 12 feet) and one well installed into the deeper aquifer (approximately 36 feet deep). In May 2003, an additional well pair was installed (wells CW712 and CW736), well nest CW3 was relocated and monthly CAMU gauging began.
- **CAMU Network Installation and Baseline Monitoring Assessment Report** (RETEC, 2007) summarized the results from the initial baseline groundwater monitoring event that was conducted in September 2001. As required in the

CAMU GWMP, a minimum of eight quarters of groundwater monitoring were required prior to calculation of the trigger values. To assure that CAMU operations do not result in additional impact to down gradient groundwater, a statistical assessment would be conducted on the baseline results and allow the comparison of down gradient CAMU target analyte concentrations to those obtained from the same wells prior to CAMU operations. An Addendum to this report is planned to be submitted September 2008.

- **Draft Maps and Tables to Support Groundwater Environmental Indicator** (RETEC, 2007) were submitted in January 2007. The data submitted supported the assertion the impacted groundwater was not migrating off site.

#### 2.4.4 Interim Measures Conducted To Date

- **SWMU 11 and 12 Interim Measures Construction Report** (ThermoRetec, 1998) was submitted in December 1998. This report documented work that was completed in conjunction with the SWMU 11 and 12 Interim Measures Work Plan (RETEC, 1998) which provided detail on an interim measures proposed for SWMU 11 and SWMU 12 to pave the exposed soil of each SWMU. This IM was designed to be consistent with the final remedy for the SWMUs following completion of a CMS that included further assessment of SWMUs 11 and 12. Isolating SWMU 11 and SWMU 12 with asphalt pavement was the selected interim measures because soil in both SWMU 11 and SWMU 12 could potentially affect groundwater via leaching (based on comparison to Soil Screening Levels for groundwater), and soil could be contacted by workers and other terrestrial receptors. The asphalt pavement serves to minimize infiltration of precipitation, and also isolates SWMU 11 and SWMU 12 soils from potential receptors.
- **Interim Measures Report – Well CW3 Non-aqueous Phase Liquid Area** (RETEC, June, 2006) was submitted June 2006 and describes activities performed in the vicinity of well nest CW3. The purpose of this well nest was to monitor groundwater flow and geochemistry down gradient of the CAMU during the establishment of baseline conditions, the construction and operation of the CAMU, and the closure/post-closure period for Landfarms 10 and 12. The presence of non-aqueous phase liquid (NAPL) was suspected during the installation of this well nest in April 2001. Soil saturated with petroleum hydrocarbons was noted during installation and measurable quantities of NAPL were observed in the well casing of one well (CW312) soon after completion. The deep well of this well nest (CW348) was abandoned and replaced in a different location. The primary objective of the interim measures was to select an approach consistent with and equivalent to the groundwater remedy described in the Corrective Measure Study. An assumption implicit in the scope of the interim measures was that remedial activities were not planned for the CW3 NAPL Area, thus necessitating interim measures prior to implementation of the site-wide three-phase groundwater remedy.

#### **2.4.5 Corrective Measures Construction Conducted To Date**

Table 1 provides a status summary of each SWMU, AOC and CAMU associated with the CMI Order as of 30 June 2008. The following activities were conducted as part of the Phase I Corrective Measures:

- Construction and completion of CAMU East (formerly SWMU 3 and/or Landfarm 12);
- Excavation of impacted soils from SWMU 5 South located south of the east-west access road to the northern boundary of SWMU 3/CAMU East;
- Excavation and removal of the former American Petroleum Institute (API) separator at SWMU 7. Once the API structure was removed, impacted soil was excavated along the excavation sidewalls and beneath the former structure to an average elevation of -10 feet North American Vertical Datum (NAVD) with smaller areas as deep as -12 feet NAVD;
- Removal, excavation, dewatering, and rerouting of the below ground 48-inch OWS beneath CAMU East;

Material excavated from the OWS reroute project, berm subgrade, 48-inch OWS pipe removal, SWMU 7 API Separator demolition, and SWMU 5 South was placed into the CAMU East footprint.

Phase I Corrective Measures construction activities were documented in the following reports:

**Corrective Measures Implementation 2007 Annual Progress Report**  
(RETEC, 2008) submitted in February 2008;

**Oily Water Sewer Contents Removal Procedures letter report**  
(ENSR, 2008) submitted in April 2008;

**Corrective Measures Implementation Quarterly Progress Report**  
(ENSR, 2008) submitted in May 2008;

**OWS Reroute Construction Report**  
(ENSR, 2008) submitted in June 2008;

**Phase I Corrective Measures Implementation Report**  
(ENSR, 2008) submitted in July 2008;

#### **2.4.6 Lessons Learned from 2007-2008 Construction**

Using the experience gained during completion of CAMU Phase I construction activities, Western conducted a "lessons learned" process in order to identify and resolve any

issues prior to initiating subsequent CMI construction phases. Key aspects of the project were reviewed and included administrative functions, technical aspects, and construction delivery and fulfillment. The results of this review were summarized by Western in a letter dated 6 June 2008 to the USEPA which identified several alternatives to improve the overall project.

Key aspects identified for review included:

- Minimizing risks to the project and to the refinery;
- Improving overall project schedule and implementation;
- Improving project cost estimates;
- Improving groundwater remediation plan;
- Improving chain of communication;

The following specific project elements were identified as having significant potential to improve key aspects of the project:

- **Consolidation of Construction Phases:** Streamline and expedite the project by performing each of the next three planned phases of closure (Phases II, III, and IV) as a single construction operation (Phase II). This will eliminate redundant activities associated with each phase (e.g. procurement and mobilization).
- **On-Site Soil Borrow:** Use available on-site fill material as backfill or structural fill versus purchasing the vast majority of backfill from an off-site source. Using available fill material from the Refinery property will minimize the amount and cost of imported fill, reduce the number of trucks traveling to and from the off-site borrow source, and reduce the potential for traffic accidents.
- **Elimination of Solidification in SWMU 7:** Evaluate dredging the SWMU 7 areas versus in-place solidification of SWMU 7 areas (EQB, FBP, and SRP). This will minimize the amount of waste to be placed in the CAMU West as admixtures will not be needed prior to removing impacted soil to the CAMU West. Dredging will also take less project construction time in these SWMU areas and is also more cost-effective than using in-place solidification.
- **Improve Construction Cost Estimates For Better Planning:** Cost estimates will be provided to the Refinery by an environmental construction firm during the design aspects of the consolidated Phase II work. The Refinery will be able to better plan earlier in the project and this will reduce the overall cost to the project.

- **Improve Project Chain Of Communication to Ensure Key Elements of the CMI Order are Met:** This will improve the overall project delivery and will ensure project requirements are met in a timely fashion.

### **3.0 Corrective Measures Implementation Order**

The Statement of Purpose presented in Section III of the CMI Order is quoted below:

"In entering into this Consent Order, the mutual objectives of USEPA and Respondent are the protection of human health and/or the environment through: (1) the implementation of the corrective measures described in USEPA's Final Decision and Response to Comments, dated March 31, 2004 (collectively referred to herein as the "FDRTC"), incorporated hereto and made a part hereof as Attachment A, as it pertains to the Facility, and, (2) the performance of Interim Measures ("IM") at the Facility to prevent or mitigate threats to human health and/or the environment."

The work to be performed is outlined in Section VI of the CMI Order and lists the tasks that are required for inclusion into the CMI WP. The USEPA developed the CMI SOW (USEPA, 2004) to guide the content of this work plan.

As summarized in Table 1, the Refinery has completed a significant portion of the CMI design process and corrective measures construction to support the remediation of contaminated soils and sediment. The groundwater remediation has been developed conceptually as described in the Risk Assessment and Corrective Measures Study Report (RA/CMS) (RETEC, 2001) and will include three phases. The Refinery is at different stages of planning and/or performing additional remedy support tasks that are necessary to complete the design of the soil/sediment excavation and restoration (SWMU 6, SWMU 7, BCP, Salt Marsh Outfall evaluation) or identify groundwater sources (below ground OWS inspection, cleaning, and repair [IC&R] project), to support future design of groundwater remediation system(s).

The following sections provide a short description of each component identified in Section VI of the CMI Order that will be completed at the Refinery.

### **3.1 Corrective Measures Work Plan and Design**

#### **3.1.1 Corrective Measures Implementation Work Plan**

A CMI WP is designed to describe the process that will be used to implement the corrective measures selected by the USEPA in the FDRTC as it pertains to the Refinery. This revised CMI WP is an update to the most recent CMI WP (RETEC, 25 October 2007) and incorporates remediation progress to date and revisions to the conceptual design for remaining work.

According to Task I of the CMI SOW, the CMI WP is made up of five interdependent plans presented in this report as follows:

- Management Plan [(MP), Appendix A];
- Community Relations Plan [(CRP), Appendix B];
- Sampling and Analysis Plan [(SAP), Appendix C];
- Corrective Measures Permitting Plan [(CMPP), Appendix D];
- Supplemental Field Investigation Work Plan [(SIWP), Appendix E];

The MP is presented in Appendix A and will:

- Document the overall strategy for performing the design; construction; and operation, maintenance, and monitoring of corrective measures;
- Describe the key personnel and organizations that will be implementing the corrective measures and define the responsibility and authority of each entity. The specific qualifications of any key personnel will be discussed;
- Provide a detailed schedule that identifies project milestones defined in the CMI Order, for both engineering tasks and the groundwater remedy;
- Describe how the remedial approach for each area will meet the technical requirements set forth in the CMI Order;

The CRP is presented in Appendix B. This plan describes the approach that will be used to keep the community informed of corrective measures progress as well as provide opportunities for the public to participate in the corrective action decision process at the Refinery.

The SAP Addendum is presented in Appendix C and has been developed as a supplemental document to the original SAP (ThermoRetec, 1999) developed for the Phase II RFI. These documents provide guidance for data collection to support the delineation of, or design for, the remedial actions proposed for the site. The activities at the Refinery fall under several regulatory agencies; therefore, the investigation of contaminants at the site can be guided by different plans and/or regulations. In order to streamline the submittal of this revised CMI WP, the RETEC revised SOPs, which have been reviewed and approved by the USEPA, are included as attachments to the SAP addendum. These SOPs along with their subsequent forms (e.g. sample labels, test pit logs) will be updated for future submittals.

The CMPP is presented in Appendix D and summarizes the federal, state, and local permits and approvals that will be required to implement the corrective measures selected for the Refinery.

CMI support activities to be conducted prior to and during the completion of corrective measures include supplemental field investigation activities required to support the design of remedial actions. Investigation activities will include sampling, monitoring, data analysis, and reporting specific to each event. Separate work plans and reports will be developed for investigations that will be conducted to support the remedial design.

Accordingly, Western submitted two supplemental field investigation work plans to the USEPA, dated 17 September 2008. These work plans are included in Appendix E:

1. Planned Sampling Activities for On-site Backfill Active and Former Dredge Spoils and Soil Stockpile Area;
2. Construction Characterization Activities for SWMU 5 North and SWMU 6;

Additionally, a work plan for SWMU 7 Dredging and Dewatering, dated 30 September 2008, was submitted under separate cover. Other work may be needed and will be documented in separate work plans.

The QAPjP Addendum is presented in Appendix F and expands upon quality assurance/quality control (QA/QC) protocols established in the original Quality Assurance Project Plan (ThermoRetec, 1999) developed for the Phase II RFI. The QAPjP Addendum will incorporate activities identified in the CMI WP.

### **3.1.2 Corrective Measure Design – Soil and Sediment**

Corrective measures for the Refinery as presented in the Statement of Basis and FDRTC include remediation of soil and sediment at SWMUs, one AOC, and construction of CAMU East and CAMU West. Following the approval by the USEPA of this revised CMI WP, the CMI design will be prepared according to Task II of the CMI SOW. The first component of the CMI Design is a 30 percent (%) CMI Design Report that includes at a minimum, a list of plans and specifications.

Documents submitted for the Phase I CAMU East corrective measures construction activities already completed at the Refinery included the following:

- Phase I Construction Plans (100% Design) for the Corrective Action Management Unit Construction and Solid Waste Management Unit Remediation (RETEC, 2007);
- Technical Specifications (100% Design) for the Corrective Action Management Unit Construction and Solid Waste Management Unit Remediation (RETEC, 2007);

- Construction Quality Assurance Project Plan for Corrective Action Management Units and Solid Waste Management Unit Restoration (RETEC, 2007);
- Site-Specific Health and Safety Plan—Amendment 9 (RETEC, 2007);
- Performance Monitoring Plan (RETEC, 2007);
- Perimeter Air Monitoring Plan (RETEC, 2007);
- Stormwater Modeling Report (RETEC, 2004);
- Design Input Investigation Report (RETEC, 2005) and Design Input Investigation Report Addendum (RETEC, 2007);
- 100% Design Plans and Specifications for the Below Grade Oily Water Sewer Reroute (RETEC, 2007);
- Remediation cost estimate;

For the upcoming Phase II corrective measures construction activities (CAMU West), the design will be submitted to the USEPA for review and approval prior to CAMU West construction. Documents to be submitted for Phase II include the following:

- Phase II Design Summary Report;
- Phase II Construction Plans for the Corrective Action Management Unit Construction and Solid Waste Management Unit Remediation;
- Technical Specifications for the Corrective Action Management Unit Construction and Solid Waste Management Unit Remediation (RETEC, 2007, with revisions as required);
- Construction Quality Assurance Project Plan for Corrective Action Management Units and Solid Waste Management Unit Restoration (RETEC, 2007, with revisions as required);
- Site-Specific Health and Safety Plan (under revision);
- Performance Monitoring Plan (RETEC, 2007, with revisions as required);
- Stormwater Modeling Report (RETEC, 2004 with revisions as required);
- OWS CI&R;
- Remediation cost estimate for Phase II (CAMU West and groundwater remedy);

### **3.1.3 Corrective Measure Design – Groundwater Remediation**

The groundwater remedy for the Refinery consists of three phases as required by the FDRTC. The three phases cover all aspects of groundwater remediation including:

1. Source Control and Monitoring;
2. Groundwater Characterization;
3. Groundwater Restoration;

However, due to the localized nature of specific groundwater plumes and ongoing corrective action activities in various portions of the site, the phases are not necessarily implemented in chronological order. For example, Phase Two activities may be initiated in one area while Phase One activities continue in another. In general, however, site-wide groundwater restoration activities will conclude with Phase Three activities. The requirements of each phase are identified below.

**Phase One - Source Control and Monitoring** is ongoing and consists of the following activities to address short-term groundwater protection:

- Contaminant source removal via routine NAPL removal activities consistent with the VDEQ AST Program;
- SWMU excavation, CAMU construction, and planned CI&R of the below ground OWS;
- Compliance monitoring;
- Institutional controls (ICs);

Routine groundwater compliance monitoring activities are ongoing as part of the monthly VDEQ AST leak detection monitoring program and the semi-annual permitted Industrial Waste Landfill (IWL) monitoring. In addition, groundwater monitoring has been established for the construction and operation of the CAMU, as well as the post-closure monitoring for the CAMU and former Landfarms 10 and 12.

**Phase Two – Groundwater Characterization** Phase Two activities consist of plume evaluation and refining the ongoing compliance monitoring and NAPL recovery programs. The USEPA has established two near-term goals, termed Environmental Indicators (EIs) for the site. The EIs are:

1. Current human exposures under control;
2. Migration of contaminated groundwater is under control;

In 2007, the Refinery achieved a positive determination for both EIs indicating human exposures were under control and migration of contaminated groundwater was under control at the Refinery. The positive EI determination was achieved without hydraulic control suggesting that natural attenuation processes have been effective in controlling plume migration. Points of compliance (POCs) will be established for monitoring groundwater conditions to demonstrate that positive EI determinations are maintained and remediation goals are achieved. Groundwater monitoring will be refined as needed to gain a better understanding of groundwater flow across the site and complete the assessment of groundwater impacts.

**Phase Three – Groundwater Restoration** Phase Three includes the evaluation and application of long-term groundwater remedies as needed to meet the remedial goals of the project. Groundwater characteristics will be reassessed after source removal activities are completed and groundwater conditions have stabilized. The positive EI determination suggests that monitored natural attenuation is effective in controlling plume migration and will ultimately be effective in restoring groundwater quality. Procedures for conducting the reassessment, potentially applicable remedies, and procedures for remedy selection will be documented in a work plan.

Routine monitoring of the CAMU, IWL and AST Program monitoring will continue in Phase Three, and a long-term monitoring program will be implemented to assess the progress of groundwater restoration. Preventing future releases will involve CAMU maintenance and monitoring, and maintaining refinery operating procedures designed to prevent releases to the environment.

### **3.1.4 Corrective Measure Construction – Soil and Sediment**

#### **3.1.4.1 CAMU East**

As summarized in Section 2.4.5 of this revised CMI WP, CAMU East was completed as part of the Phase I construction activities in early 2008. CAMU East (formerly Landfarm 12 and SWMU 3) contains impacted soils and debris which were excavated from the southern area of SWMU 5, the SWMU 7 former API Separator, and the excavation and reroute of the belowground OWS beneath CAMU East. These Phase I construction activities were summarized in the Phase I Corrective Measures Implementation Report (ENSR, 2008).

#### **3.1.4.2 CAMU West**

Soil and sediment corrective measures for CAMU West will be implemented as part of the planned Phase II construction activities upon USEPA approval of this revised CMI WP and subsequent CMI Design Reports. A preconstruction meeting and site inspection will be held prior to initiating significant corrective measures. During CAMU West construction, periodic inspections will be conducted to monitor the construction

and implementation of remedial actions. When construction is complete, a CAMU West post construction meeting and final inspection will be performed to ensure construction work is complete and consistent with the USEPA-approved documents and corrective measures.

Upon completion of Phase II construction activities, a CAMU West CMI Report including construction certification and as-built drawings will be submitted to the USEPA for approval. From this CAMU West CMI Report, the USEPA will ensure construction is complete and consistent with the USEPA-approved Final CAMU West CMI Design Report.

## **4.0 Design Elements**

This section describes the design of corrective measures that will be implemented to address COCs identified in soil, sediment, and groundwater, and how corrective measures are expected to meet the technical requirements of the FDRTC (USEPA, 2004).

### **4.1 CAMU Design and Construction**

#### **4.1.1 CAMU Regulatory Summary**

Corrective measures proposed for the Refinery focus primarily on source removal and source control through excavation, consolidation, and capping of impacted materials in conjunction with groundwater remediation and monitoring. Remediation of contaminated soil and sediment at the Refinery will primarily rely on the construction of a CAMU to manage and provide long-term control of remediation wastes generated during corrective measures. Implementing the CAMU will be done in compliance with the CAMU requirements set forth in 40 CFR Section 264.552(c). The seven criteria for implementing a CAMU in accordance with federal regulations are as follows:

1. The CAMU shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies;
2. Waste management activities associated with the CAMU shall not create unacceptable risks to humans or the environment resulting from exposure to hazardous wastes or hazardous constituents;
3. The CAMU shall include uncontaminated areas of the facility, only if including such areas for the purpose of managing remediation waste is more protective than management of such wastes at contaminated areas of the facility;
4. Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases to the extent practicable;
5. The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable;
6. The CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance long-term effectiveness of remedial actions by reducing toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU;
7. The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU;

These criteria will be met by performing SWMU remediation and CAMU construction activities per the final Corrective Action Management Unit Application (RETEC, 2002). These activities are briefly summarized below.

#### **4.1.2 CAMU Design Completion**

Section VI. Subpart B-1 of the Order identifies the documents that will regulate the construction of corrective measures selected for the Refinery in the FDRTC. These documents include:

- The CMI SOW,
- The schedule set forth in the USEPA-approved CMI WP;
- The USEPA-approved 90% CMI Design Report (with complete plans and specifications);

CAMU construction and SWMU excavation is being implemented in a phased approach. The Refinery prepared and submitted a 100% Design Document Package for Phase I of the SWMU Remediation and CAMU Construction on 30 March 2007. The 100% Design Document Package integrates the designs for SWMU remediation, CAMU construction, storm water management, and tie-ins to existing Refinery infrastructure.

A written procedure or plan of work will be prepared by the subcontractor as part of the corrective measures process to specify how the subcontractor will implement the corrective measures. The written plan will be submitted to the USEPA solely for informational purposes only. The written plan is not intended to replace the 100% Design Document Package as the subcontractor's field procedures may change throughout the construction process. The USEPA-approved 100% Design Document Package, and the USEPA-approved CMI WP will make up the Final CMI Design Report.

The construction subcontractor will manage SWMU remediation and CAMU construction activities. The subcontractor's construction manager will be responsible for implementing work activities in accordance with the bid design plans and specifications. Construction quality assurance will be provided by a selected subcontractor to ensure compliance with the design.

#### **4.1.3 CAMU Construction**

CAMU East was constructed at Landfarm 12 and CAMU West will be constructed at Landfarm 10. Landfarms 10 and 12 are inactive land treatment units designated by the USEPA as SWMUs 1 and 3. By designating the landfarms as a CAMU, these units will be considered closed under the provisions of the Virginia Hazardous Waste Regulations as described in the Modified Closure Plan, Landfarms 10 and 12 (ThermoRetec, 1999). This approach is an effective way to consolidate remediation waste, maximize the benefit of the landfarm cap, and minimize the area in which waste remains in place at the Refinery.

#### **4.1.3.1 CAMU East**

As summarized in Section 2.4.5 of this revised CMI WP, CAMU East was completed as part of Phase I construction activities in early 2008. CAMU East (formerly Landfarm 12 and SWMU 3) contains impacted soils and debris which were excavated from the southern area of SWMU 5, the SWMU 7 former API Separator, and the excavation and reroute of the below ground OWS beneath CAMU East. These Phase I construction activities were summarized in the Phase I Corrective Implementation Report (ENSR, 2008).

#### **4.1.3.2 CAMU West**

Phase II corrective measures includes the design and construction of the CAMU West, which is presently designated as SWMU 1 and located at Landfarm 10.

CAMU West will be the final repository of materials from the following SWMUs, AOC, sediments from a limited area of BCP, and remaining OWS work:

- SWMU 2 Landfarm 1;
- SWMU 5 (North) Former API Separator Sludge Pits (North portion);
- SWMU 6 Former Landfill;
- SWMU 7 Filter Backwash Pond;
- SWMU 7 Storm Water Retention Pond;
- SWMU 7 Equalization Basin;
- SWMU 8 Leaded Tank Bottoms Area "hot spot" removal;
- SWMU 9 Unleaded Tank Bottoms Area;
- SWMU 10 Former Heat Exchanger Bundle Cleaning Pad;
- AOC 1 North Coker Ditch;
- BCP Bull Creek Pond (limited excavation area);
- OWS Oily water sewer CI&R sediments and removal of selected sections;

With the exception of the OWS, the above referenced areas designated for excavation along with the proposed Phase II CAMU West are illustrated on Figure 3. The sections of the OWS which are going to be cleaned, inspected, and repaired are illustrated on Figure 4. Selected sections of the OWS to be removed are also illustrated on Figure 4 and this work will be finalized as part of the design for CAMU West. The estimated volumes of impacted material to be removed from the above areas are summarized in Table 2.

Figure 5 illustrates the preliminary design of the final cover in CAMU West. These preliminary contours will be adjusted during the upcoming design of CAMU West.

For CAMU West, a written plan will be prepared by the remediation subcontractor and will specify the remediation subcontractor's field procedures used to implement the corrective measures. The written plan will be submitted to the USEPA solely for information purposes, and will be considered an execution plan only. This written plan will not be considered part of the 100% Design Documents.

CAMU West will incorporate NAPL-saturated soil and sediment and other contaminated materials. The concept is to place the more contaminated materials in the CAMU cell at higher elevations in an effort to minimize potential impacts to groundwater beneath the site. Details of SWMU remediation and CAMU construction are discussed in Section 4.2 of this report. The total volume of remediation waste to be incorporated in CAMU West from the units listed above is estimated at approximately 115,000 cubic yards (cy) (Table 2).

Restoring excavated areas will include backfilling with acceptable fill material. Backfill sources will be analyzed for VOCs (EPA Method 8260), semi-volatile organic compounds (SVOCs) (EPA Method 8270), metals [USEPA Method 1311 for toxicity characteristic leaching procedure (TCLP) and USEPA Method 3050 for Total Metals], pesticides (USEPA Method 8081A) and polychlorinated biphenyls (Method 8082) using standard reporting limits.

Acceptance criteria for the fill are Statement of Basis risk-based remediation goals (RBRGs), Statement of Basis Soil Screening Levels (SSLs), USEPA Region III Industrial Risk-Based Criteria and TCLP results that meet the criteria established in 40CFR 261.24 (see construction specification 02300). Impacted soil and sediment placed in CAMU West will be capped using a low-permeability hybrid cap. The impoundment cap for CAMU West will have the same construction profile and details as used for the USEPA approved cover on CAMU East.

As previously discussed, several documents and deliverables will be prepared as part of the CMI process. During SWMU remediation and CAMU construction, daily logs and reports of construction activities will be prepared for the project file. At the completion of remedial construction, a CMI Completion Report will be prepared and submitted to the USEPA and the VDEQ documenting the final remediation of the SWMUs and construction of the CAMU, including the approved landfarm closure cap design.

Post-closure maintenance of the CAMU will be completed in accordance with the VDEQ-approved Modified Closure Plan, Landfarms 10 and 12 (ThermoRetec 1999). Long-term groundwater monitoring of the CAMU will be completed using the in-place CAMU well network currently monitored and will be conducted in accordance with the Corrective Action and Management Unit and Landfarms 10 and 12 Groundwater Monitoring Plan (RETEC, 2003) provided as Appendix C of the CAMU Application. If significant groundwater impacts are detected via this network, additional corrective measures may be required. Guidelines for long-term cap monitoring will be contained in

the Cap O&M Manual that will be submitted to the USEPA for review at the end of CAMU West construction.

#### **4.1.4 Monitoring Well Abandonment**

Several groundwater monitoring wells located within and adjacent to SWMU 1 (proposed CAMU West) and SWMUs selected for Phase II excavation may be destroyed during construction and soil removal activities. Therefore, these wells will be properly abandoned approximately 90 days prior to initiating Phase II construction activities.

The Well Abandonment Work Plan (RETEC, revised October 2007) for the refinery is included as Appendix G. This plan provides a list of wells to be abandoned, proposed abandonment methods based on well construction and/or the presence of NAPL in a well, and documentation and reporting procedures. Table 3 of this revised CMI WP is an updated status summary of monitoring wells abandoned prior to Phase I (CAMU East) construction activities, and those that are proposed to be abandoned prior to Phase II (CAMU West) construction activities.

#### **4.1.5 Below Ground OWS Reroute**

The below ground OWS was constructed in 1956 and served as the Refinery's process sewer until 1990, when the Refinery's above ground sewer was constructed and placed into operation. Figure 4 shows the location of the existing, abandoned and excavated portions of the below ground OWS at the Refinery. Additional portions of the below ground OWS will be excavated as part of Phase II Corrective Measures construction.

A Design Basis Memorandum Oily Water Sewer Reroute (RETEC, 2005) was submitted for the reroute of a portion of the below ground OWS from sewer box SB60 to the OWS Sump. This design was completed in April 2007 and work was completed during construction of CAMU East.

The work included the following:

- Removal of the portion of the below ground OWS beneath CAMU East (Landfarm 12). This was completed as part of Phase I construction activities;
- Removal of the portion below CAMU West (Landfarm 10);
- Cleaning, plugging, and abandoning the OWS under First Street at the Avenue C intersection and from the Second Street and Avenue C intersection to the OWS Sump;

At the completion of the below ground OWS reroute construction, the Refinery will continue with the CI&R of the remaining below ground OWS through 2010.

## 4.2 Phase II SWMU and AOC Remedy and Design Summary

Table 1 summarizes the corrective actions identified for each SWMU and AOC 1 as required in the Statement of Basis and by the FDRTC and provides the status as of 30 June 2008. This section discusses the approach for implementing the selected remedies. Details of SWMU remediation and CAMU West construction will be presented in the CMI Design Report.

Excavation of NAPL / petroleum-impacted soil will be conducted to meet the project requirements, with appropriate modifications due to site constraints. If suspect NAPL or petroleum-impacted material is discovered at an excavation horizontal or vertical boundary, the Site Engineer or QA/QC personnel will evaluate the suspect NAPL first by observing visual staining associated with hydrocarbon odors, elevated PID readings, an oily residue on nitrile gloves, or laboratory test results on the soil material. If it is determined that NAPL is re-entering the excavation via the groundwater and not associated with soil impacts, excavation vertically will be stopped and these impacts identified and documented for inclusion in the site-wide groundwater remedy.

To facilitate excavation procedures in the field, a decision rule flow diagram was prepared. Figure 6 schematically illustrates the process to be followed in the field when NAPL / petroleum-impacted material is encountered in an excavation. This figure will be incorporated into a technical specification that will be submitted with the Phase II design documents to address NAPL / petroleum-impacted material encountered in excavation areas.

### 4.2.1 SWMU 5 (North)

Remedial actions for Phase II of SWMU 5 North consist of excavating the former sludge pit area between the SWMU 7 SWRP and north of the access road [68,000 feet squared (ft<sup>2</sup>)]. Soil excavation will extend vertically to the Mean Seasonal Low Groundwater Table (MSLGT). Over excavation of potentially impacted soil in the floor and walls of the excavation will be limited laterally by physical constraints (ASTs, utilities, sheet pile wall) and administrative boundaries of adjoining units (e.g. SWMU 6) and vertically by the MSLGT.

The proposed limits of excavation for SWMU 5 North include the area surrounding well CW312, which has previously contained dense non-aqueous phase liquid (DNAPL). As stated in the CQAP (RETEC, 2007) and the Interim Measures Report—CW3 NAPL Area (RETEC, 2006), visual inspection methods will be utilized to ensure the removal of all NAPL-saturated soils to the extent practicable. Accordingly, excavation activities may proceed lower than the MSLGT if process residual and/or NAPL are observed, and excavation conditions support additional excavation.

Construction dewatering methods may be required for the removal of soils present below the current groundwater table. However, the excavation of soil significantly

deeper than the MSLGT at the CW312 NAPL Area would require impractical dewatering and shoring operations. In addition, as specified in the CQAP, excavation activities cannot progress into areas that would affect the stability of existing infrastructure. Thus impacted soil observed in the excavation sidewall near the wastewater treatment plant components at the west end of the excavation will not be removed. The final depth and lateral extent of excavation within the CW312 NAPL Area will be determined by field conditions based on observed groundwater depth, soil type, and limits of the engineering controls.

As outlined in the PMP, documentation and verification samples will be collected to document residual soil concentrations and ensure protection of future construction workers and to determine the limits of excavation. Verification samples will be compared to the SWMU 5/7 SSLs provided in Table 2A of the Statement of Basis. If the results of the documentation samples exceed the clean-up levels for this SWMU then potential groundwater remedies will be evaluated. The excavated material will be included in the CAMU West impoundment. The excavation areas will be backfilled with suitable fill material to above the Mean Seasonal High Groundwater Table (MSHGT). The final elevation for the backfill will be determined as part of the design.

#### **4.2.2 SWMU 8**

SWMU 8 consists of the ASTs and associated berms for Tanks 608, 609, 610, 611, and 619. Formerly, these tanks were used to store leaded gasoline. Tank cleaning operations conducted during this time included removing the leaded tank bottoms and depositing them in pits located inside the tank berms. These operations were conducted approximately once every 10 years during this period.

In accordance with the Statement of Basis, FDRTC, and CMI design, the corrective action for SWMU 8 consists of excavating "hot spots" located inside the berms of Tanks 608, 609, and 619. The horizontal limits of excavation at each "hot spot" will be approximately 4 feet by 4 feet and extend vertically to 3 feet bgs. The total excavation volume for the "hot spots" is approximately 7 cubic yards.

If NAPL is encountered during excavation, the corrective action will include removing the NAPL-impacted soil as described above. The excavated soil will be managed in the CAMU West. As described in detail in the PMP, prior to backfilling, verification soil samples will be collected from the floor and sidewalls of each excavation area. Verification samples will be compared to the SWMU 8 SSLs to confirm the limits of excavation. If the results of the verification samples exceed the clean-up levels and further excavation is obstructed, potential groundwater remedies will be evaluated. Based on the process identified on Figure 6, the excavation areas may be over excavated and the excavations will be backfilled with suitable fill material to original grade.

#### **4.2.3 SWMU 7 Storm Water Retention Pond**

The SWRP is one of three man-made ponds that are part of SWMU 7 and the SWRP is located at the northeast corner of the Refinery. The SWRP is bound to the east by an access road and facility fence line that borders the woods at the east end of the property. The southern extent of the pond is bound by a row of sheet piling that separates the SWRP from SWMU 5 North, the northern end is separated from the SWMU 7 EQB by an earth berm, and the SWMU 7 FBP is located between the west side of the SWRP and First Street.

The SWRP is an unlined structure with an operating depth of approximately 5 feet bgs. The dimensions of the pond are approximately 450 feet by 390 feet, which includes the sloped sides of the pond covered by rip-rap. The SWRP was also a primary unit of the wastewater treatment plant (WWTP) from the beginning of Refinery operations to 1990, when it was taken out of service and replaced with ASTs. Sludges from the SWRP were removed in 1969 and again in 1976. The excavated sludge material was placed in either Landfarm 10 and/or the IWL (SWMU 4); these sludges have since been removed from the units.

As detailed in the Statement of Basis, FDRTC, and CMI design, the corrective action for the SWRP consists of excavating sludge and impacted soil to the impoundment bottom (native material) and includes 1-foot excavation of the sloped sidewalls at the unit boundary.

Based on the results of the SWMU 7 Dredging and Dewatering Evaluation (Opal, September 2008), this material will be dredged followed by mechanical drying methods. Prior to placing the dredged and dried material into the CAMU West, the soil and sediment will meet CAMU acceptance criteria (i.e. pass the paint filter press). A pilot-scale test of the dredging and drying will be conducted prior to full scale operations to demonstrate the ability to dredge the soil and sediment from SWMU 7 SWRP.

A pilot-scale test of the dredging and drying will be conducted prior to full scale operations to demonstrate the ability to dredge the soil and sediment from SWMU 7 SWRP. Debris that may be encountered will be reduced so that no piece is larger than 2 feet in any dimension. Piping will be crushed, cut in half lengthwise, or if a small diameter, securely plugged in lieu of crushing, and placed into the CAMU. The total extent of area to be excavated is approximately 173,000 ft<sup>2</sup>, or 3.97 acres. As described in the PMP, the excavation is limited by unit boundaries and physical constraints; and, therefore, post-excavation soil samples will be collected for documentation purposes. The documentation samples will be compared to the clean-up levels for this SWMU. If the results exceed these limits, then potential groundwater remedies will be evaluated as appropriate. The excavation will be backfilled with fill material to above the MSHGT. The final elevation for the fill will be determined as part of the design.

#### **4.2.4 SWMU 7 Equalization Basin**

The SWMU 7 EQB is one of three man-made ponds and is located at the northeast corner of the Refinery. The EQB is bound to the east by an access road and facility fence line that borders the woods and tidal marsh area at the east end of the property. The southern extent of the pond is separated from the SWRP by an earth berm, the northern end is bound by an access road that separates the EQB from the settling basin, and several buildings/structures and a transformer are located between the west side of the EQB and First Street.

The EQB is an unlined structure and the dimensions of the basin are approximately 450 feet by 120 feet, which includes the sloped sides of the basin covered by rip-rap. The EQB was a primary unit of the WWTP from the beginning of the Refinery operations to 1990, when it was taken out of service and replaced with ASTs. Sludge from the EQB has been removed on two separate occasions, once in 1969 and again in 1976. The excavated sludge material was placed in either Landfarm 10 and/or the IWL (SWMU 4); these sludges have since been removed from the units.

Per the Statement of Basis, FDRTC, and CMI design, the corrective action for the EQB consists of excavating sludge and soil to the impoundment bottom (native material) and includes 1-foot excavation of the sloped sidewalls at the unit boundary. The total extent of the area to be excavated is approximately 54,800 ft<sup>2</sup>, or 1.26 acres.

Based on results of the SWMU 7 Dredging and Dewatering Evaluation (Opal, September, 2008), the Refinery intends to dredge the SWMU 7 EQB followed by mechanical drying until the soil and sediment passes the CAMU acceptance criteria (i.e. paint filter test). When the soil and sediment meet the CAMU acceptance criteria, the soil and sediment will be placed in the CAMU West impoundment.

A pilot-scale test of the dredging and drying will be conducted prior to full scale operations to demonstrate the ability to dredge the soil and sediment from SWMU 7 EQB. Debris found within SWMU 7 EQB will be reduced so that no piece is larger than 2 feet in any dimension. Piping will be crushed, cut in half lengthwise, or if a small diameter, securely plugged in lieu of crushing, and placed into the CAMU West. The excavation area in SWMU 7 EQB is limited by unit boundaries and physical constraints; and, therefore, post-excavation soil samples will be collected for documentation purposes. If the results of the documentation samples exceed clean-up levels for this SWMU then potential groundwater remedies will be evaluated. The excavation will be backfilled with fill material to above the MSHGT. The final elevation for the fill will be determined as part of the design.

#### **4.2.5 SWMU 7 Filter Backwash Pond**

The SWMU 7 Filter Backwash Pond (FBP) is one of three man-made ponds that are part of SWMU 7 and is located at the northeast corner of the Refinery. The FBP is

bordered to the east by the SWRP, to the north by an open grassed area containing underground utilities, to the west by First Street, and to the south by ASTs for the activated sludge plant. The FBP is an unlined structure with sloped sides covered by concrete.

Prior to 1990, the FBP received flow from backwashing the preliminary and final filters of the WWTP. The preliminary filter operated prior to biological treatment. After 1990, aggressive biological treatment was implemented for all flow upstream of the FBP. Sludges in the FBP were removed once in approximately 1977 and placed in Landfarm 10. Water from the FBP currently flows to the backwash clarifier and is recycled through the biological portion of the WWTP.

As described in detail in the Statement of Basis, FDRTC, and CMI design, the corrective action for the FBP includes demolition of the concrete structure and equipment. Impacted soil and sludge will be excavated vertically to the MSLGT beneath the impoundment bottom and laterally to the unit boundary. As described above, additional excavation may be required. The decision to excavate additional material will be made based on the decision flowchart illustrated in Figure 6.

During excavation activities for this SWMU 7 FBP, the soil between the SWRP and FBP (approximately 9,260 ft<sup>2</sup>) will also be excavated to the MSLGT. The total extent of area to be excavated is approximately 28,260 ft<sup>2</sup>, or 0.65 acres.

Where possible, this material will be dredged followed by mechanical drying. A pilot-scale test of the dredging and drying will be conducted prior to full scale operations to demonstrate the ability to dredge the soil and sediment from SWMU 7 FBP. Debris will be reduced so that no piece is larger than 2 feet in any dimension. Piping will be crushed, cut in half lengthwise, or if a small diameter, securely plugged in lieu of crushing, and placed into the CAMU West impoundment. As discussed in the PMP, verification and documentation soil samples will be collected to document residual soil concentrations and ensure the protection of future construction workers and to determine the limits of excavation. Verification sample results will be compared to the SWMU 7 SSLs to confirm the limits of excavation. If the results of documentation samples exceed the clean-up levels for this SWMU then potential groundwater remedies will be evaluated, if necessary. The excavation will be backfilled with clean fill material to above the MSHGT. The final elevation for the fill will be determined as part of the design.

#### **4.2.6 SWMU 2**

Between 1977 and 1980, SWMU 2 (Landfarm 11) was used in the land treatment of Refinery wastes. The unit is surrounded by earth berms on all four sides and a storm water ditch system to control run-off. SWMU 2 is located directly between Avenue E (south) and Avenue D (north), west of Second Street.

As detailed in the Statement of Basis, FDRTC, and CMI design, corrective action for SWMU 2 consists of removal of the surface soil from the eastern portion of the unit. The material will be excavated from ground surface to approximately 1 to 2 feet bgs depending on topography.

The proposed excavation for SWMU 2 encompasses the eastern half of the unit, which is approximately 232,000 ft<sup>2</sup>, or 5.33 acres. The lateral extent of the proposed excavation is limited by the unit boundary. As outlined in the PMP, 11 verification samples will be collected from the excavation floor for laboratory analysis. Verification samples will be compared to the SWMU 2 risk-based remediation goals (RBRGs) to confirm the limits of excavation. The excavated material will be managed in CAMU West and backfill will be placed into the excavated areas to grade.

#### **4.2.7 SWMU 9**

Unleaded tank bottoms from decanted oil Tank 405 were deposited within the firewalls of Tank 110 in August 1982. The tank bottoms were disked into soil periodically to promote biodegradation. SWMU 9 is located in the southwest corner and inside the berm of Tank 110 in the southwestern portion of the Refinery.

As described in the Statement of Basis, FDRTC, and CMI design, the corrective action for SWMU 9 consists of removing surface soil to the unit boundaries. The SWMU material will be excavated from the ground surface to approximately 1 foot bgs. The excavation for SWMU 9 encompasses a trapezoidal area approximately 171,000 ft<sup>2</sup>, or 3.93 acres. The lateral extent of excavation is limited by unit boundaries (berms) on the south and west sides, and physical constraints (Tank 110) to the northeast.

Soil samples at SWMU 9 were obtained to verify the limits of excavation not previously determined during RFI activities. The results of the preconstruction verification sampling event conducted in November, 2006 were used to determine the limits of excavation for the northeast portion of SWMU 9. These results are presented in the final PMP. Soil samples collected during the Phase II RFI will serve as documentation samples for SWMU 9; therefore, no floor samples will be collected from the excavation. The excavated material will be managed in the CAMU West impoundment, and backfill will be placed into the excavated areas to original grade.

#### **4.2.8 SWMU 10**

The heat exchanger bundle cleaning pad (SWMU 10) was formerly used to clean heat exchanger tubes with high-pressure water jets. The unit is located immediately north of Avenue C access from the Combo Unit and the western border is approximately 160 feet east of Seventh Street. The pad is surrounded by a 2-foot earth berm to contain run-off, that drains to the Refinery sewer inlets and then to the on-site WWTP.

In accordance with the Statement of Basis, FDRTC, and CMI design, the corrective action for SWMU 10 consists of the demolition and removal of the concrete pad and removal of the soil berms. Concrete will be sized and placed in the CAMU West. In addition, the top 2 feet of soil will be removed to the lateral limits of the excavation.

The lateral limits of excavation include areas extending approximately 75 feet north of the pad, approximately 40 feet west of the pad, approximately 75 feet east of the pad, and south to the edge of Avenue C including a storm water ditch. However, there is a utility corridor for the Refinery high voltage electric service and a 48-inch OWS line that is located south of the pad and is approximately 35-feet wide. Safety precautions from potential ground settlement issues will preclude soil removal in this corridor. The total area to be excavated is approximately 23,950 ft<sup>2</sup>.

Soil samples at SWMU 10 were obtained to verify the limits of excavation not previously determined during RFI activities. The results of the preconstruction verification sampling event conducted in November 2006 were used to determine the lateral limits of excavation north of SWMU 10. These results are presented in the final PMP. As described in the PMP, four verification samples will be collected from the excavation floor to complete vertical delineation at this unit. All verification samples will be compared to the SWMU 10 SSLs to confirm the limits of excavation. Excavated soil will be managed in CAMU West. Backfill will be placed into the excavated areas to the original grade.

#### **4.2.9 AOC 1**

The North Coker Ditch, designated as AOC 1, is an unlined ditch designed to collect storm water runoff from operations at the Coker Unit and divert the runoff into the OWS system. AOC 1 is located in the northwest part of the Refinery, immediately south of Avenue C, between Ninth Street and Seventh Street. The ditch receives storm drainage from the street and from the north side of the coker operations. Over the history of operations at the site, coke fines, oils generated in the coking process, and oily water overflow from the former blow-down containment tank have collected in the ditch.

According to the Statement of Basis, FDRTC, and CMI design, corrective action for AOC 1 consists of removal of the top 1 foot of soil from the ditch as practicable, given the physical constraints of utilities, process piping, and other structures. The ditch will then be covered with a low permeability liner to minimize infiltration and reduce direct contact by construction workers. Where NAPL is encountered during the excavation, remedial actions will include the removal of petroleum-saturated soil following the procedures outlined on Figure 6. The excavated materials will be managed in the CAMU West impoundment.

The proposed excavation for AOC 1 encompasses an irregular area 490 feet long by 70 feet wide at its greatest extent, including approximately 27,200 ft<sup>2</sup>, or 0.624 acres. The

lateral extent and depth of the proposed excavation are limited by engineering controls, administrative boundaries, and planned dimensions of the concrete liner. In accordance with the PMP, two documentation samples will be collected from the excavation floor in lieu of verification samples since the excavation limits are defined and a low permeability liner will be installed in the ditch. Documentation samples will be compared to the AOC 1 RBRGs for the protection of future construction workers. If the results of the documentation samples exceed the clean-up levels for this SWMU then potential groundwater remedies will be evaluated, if required.

#### **4.2.10 SWMU 6**

An additional risk assessment evaluation and an additional investigation have been conducted at SWMU 6 to further characterize the risks and the potential impacts to soil and groundwater within SWMU 6.

The additional risk assessment evaluation was conducted to further characterize and define soil and groundwater impacts at the unit and based on these data, evaluate the risks to human health from these impacts, as well as potential ecological risk to Bull Creek Pond.

The additional investigation data was used to:

- Determine whether the source of down gradient and downstream soil and groundwater impacts are from SWMU 6 or from impacted groundwater flowing from adjacent SWMUs;
- Assess whether impacts present in the unsaturated zone beneath SWMU 6 may present a risk to industrial or construction workers;
- Evaluate ecological and human health risks associated with soil and groundwater impacts in SWMU 6 and down gradient surface water body, BCP;

The additional risk assessment evaluation is described in the Human Health Risk Assessment for SWMU 6 (RETEC, November 2007). The additional investigation is described in the Solid Waste Management Unit 6 Investigation Report (RETEC, December 2007). The results of this work identified areas and depths of excavation (Figure 4-3, RETEC, December 2007). The USEPA commented on this report and requested additional investigation in an area where soil analytical results from a soil boring SB6-4 indicated elevated levels of arsenic. Based on the results of the investigation, the volume of material to be excavated and placed in the CAMU West impoundment is estimated at 6,000 cubic yards (Table 2).

#### **4.2.11 Maintenance Activities—SWMUs 11 and 12**

SWMU 11 (Former Storage Container Area) and SWMU 12 (Former Drum Storage Area) are located north of Avenue F, between Fourth and Fifth Streets. SWMU 11 is approximately 30 feet by 40 feet and was used for short-term storage of covered and lined containers of hazardous materials (toxicity characteristics), such as sand blast waste and catalysts. SWMU 12 is approximately 4 feet by 300 feet and was used to store drums containing both hazardous and non-hazardous materials pending disposal.

Interim measures were conducted at SWMUs 11 and 12 in August and September 1998 to be consistent with a final remedy. Interim measures included leveling the areas by grading and removing existing soil as necessary to prepare the areas for placement of an asphalt cap. A sub-base layer of crusher-run soil was then installed, an asphalt tack coat applied as a primer and adhesive, and a finish course of asphalt applied. The asphalt was allowed to cure for 3 weeks before a seal coat was applied (ThermoRetec, 1998).

Maintenance activities for SWMUs 11 and 12 include routine inspection of the asphalt surface over each SWMU. If cracking or disturbance of the asphalt cap is observed, maintenance activities are to be initiated to repair the cracks or broken asphalt. In order to maintain the permeability integrity of the asphalt cap, a sealant should be applied every 3 to 5 years. Quarterly inspection and maintenance activities will continue as part of the final remedy for SWMU 11 and 12 in accordance with the Interim Measures Construction Report (ThermoRetec, 1998). The inspection and maintenance results will be reported to USEPA in the progress reports.

### **4.3 Groundwater Remediation Approach**

This Section presents an outline of the approach that will be taken to implement the three phases of the groundwater cleanup strategy to comply with the cleanup standards for the Refinery. Each phase of the groundwater remedy that is presented follows the outline contained in the FDRTC and the Statement of Basis. The work that has been completed or that is ongoing is presented, followed by an overview of work that is proposed.

Although the Corrective Measures Study prepared in 2002 evaluated a wide range of active remediation options, the multiple phases of the groundwater investigation and the routine monitoring programs demonstrate that no offsite releases have occurred. The Statement of Basis, as well as more recent project documents, support that groundwater impacts are only potentially related to seven of the SWMUs, with limited areas and constituents. The work that is proposed in the following sections will evaluate the extent of monitored natural attenuation (MNA) at the site.

#### **4.3.1 Groundwater Remedy Phase One – Source Control and Monitoring**

The first phase of the groundwater remedy consists of completing the delineation and removal of contaminated soils and recoverable free product (i.e. NAPL), removing free product to the extent practicable, in a manner consistent with the VDEQ AST Program and EPA's Corrective Action program, and continuing the ongoing compliance monitoring programs currently in place.

##### **Work Performed to Date**

Western established ICs prior to initiating the first phase of construction to prevent human or environmental exposure to COCs. The ICs at the Refinery restrict residential use of the property and use of groundwater until media cleanup standards (MCSs as defined in Table 2b the Statement of Basis) are met.

The Refinery has a vast monitoring well network presently in place that is utilized in the current NAPL measurement and removal program. NAPL removal activities are ongoing as required by the VDEQ-administered AST and Solid Waste Programs and the USEPA Corrective Action program. Active product removal is conducted monthly at several monitoring wells using manual bailing, passive skimmer, and periodic vacuum-enhanced fluid recovery (VEFR) techniques. NAPL removal outside of the AST Program is governed by the CAMU Groundwater Monitoring Plan (GWMP) and consists of monthly removal activities.

Compliance monitoring will continue at the CAMU in accordance with the regulating agency requirements. The IWL program and AST program monitoring will continue for compliance with existing VDEQ requirements. Currently, annual reports for each program in addition to quarterly summaries of product removal activities are prepared for the Tidewater Region of the VDEQ. Quarterly product removal data for the AST program are also included in the CMI Quarterly Progress Reports. Annual CAMU Groundwater Assessment Reports are prepared and submitted to the USEPA.

##### **Work Proposed**

###### **Subtask 1a – Soil Excavation**

NAPL-saturated soil is a potential source of groundwater contamination that is being removed via excavation to the extent practicable. The SWMU excavation and CAMU construction activities are underway as part of USEPA's Corrective Action Program.

###### **Subtask 1b – Implement Below-Grade OWS CI&R Work Plan**

An OWS inspection was conducted in 2001 in the vicinity of the 600-Series aboveground storage tank farm to investigate whether the OWS could be a source of COCs present in groundwater. The results of the inspection and cleaning indicated that the OWS appeared to be intact, but infiltrating groundwater was observed at the joints.

Because the OWS in this area lies below the water table, it likely serves as a groundwater sink rather than a source of contamination. The below grade OWS will be cleaned and inspected in other areas of the Refinery where groundwater plumes and/or the occurrence of NAPL co-exist with the OWS to determine whether or not the OWS is a source of the existing groundwater impacts. This work will be completed as described in the Oily Water Sewer Cleaning, Inspection, and Repair Work Plan (CI&R) (ENSR, 2008), with appropriate updates, and Section 5.2.2 of this work plan.

#### **Subtask 1c – Continue NAPL Removal Activities**

The site wide NAPL measuring and removal program will continue. Western will review, and revise as necessary, the current program as wells are abandoned as part of the construction activities.

#### **Subtask 1d – Evaluate Additional ICs**

In the future, ICs will be implemented to prevent disturbance of the caps on the SWMUs and CAMU, and use of the site that would interfere with the implementation, integrity, or protectiveness of the engineering portion of the remedy.

A deed restriction against the use of groundwater at the site is an IC that has been implemented as part of the groundwater remedy. This restriction will remain in place until Phase Three of the groundwater remedy is completed.

### **4.3.2 Groundwater Remedy Phase Two – Groundwater Characterization**

The second phase of the groundwater remedy consists of evaluating groundwater plumes, evaluating mechanisms controlling plume migration, maintaining the EIs, and refining the existing compliance monitoring programs. This section gives an overview of work that has been completed to date and work that is being proposed in the future to implement the second phase of the groundwater remedy.

#### **Work Performed to Date**

In 2007, the Refinery achieved a positive EI determination indicating human exposures were under control and migration of contaminated groundwater was under control. This EI determination was achieved without hydraulic control suggesting that natural attenuation processes have been effective in controlling plume migration.

NAPL and dissolved-phase plumes have been identified and investigated during the

- Phase I and II RFI (RETEC, 1997 and 2001);
- Phase II RFI Addendum (RETEC, 2001);
- Supplemental Investigation (RETEC, 2007);
- EI (USEPA, 2007);

### **Work Proposed**

#### **Subtask 2a – Develop Hydrogeologic and Geochemical Characterization Work Plan**

A monitoring plan will be developed to document hydrogeologic and geochemical conditions at the site and illustrate how those conditions control contaminant migration and attenuation. This plan will be coordinated with the routine compliance monitoring programs currently underway. A hydrogeologic and geochemical characterization will be conducted to document groundwater flow conditions and major processes controlling contaminant transport and attenuation. Results of this work will be used to:

- Estimate the assimilative capacity of the aquifer at the site for the primary COCs;
- Document portions of the site where natural attenuation processes are sufficient to limit offsite migration of contaminants; and
- Estimate and monitor the rate that natural attenuation is occurring.

The details of hydrogeologic and geochemical characterization will be developed in this monitoring plan. The following documents will be important references in developing this plan.

- *Use of Monitored Natural Attenuation at Superfund, RCRA, Corrective Action, and Underground Storage Tank Sites*, (1999). U.S. EPA. OSWER Directive 9200.4-17P. Washington, D.C. April, 21, 1999.
- *Technical Protocol for Implementing Intrinsic Remediation with Long-Term Monitoring for Natural Attenuation of Fuel Contamination Dissolved in Groundwater*, (1995). Wiedemeier, T.H., J.T. Wilson, D.H. Campbell, R.N. Miller, and J.E. Hansen. U.S. Air Force Center for Environmental Excellence, Technology Transfer Division, Brooks Air Force Base, San Antonio, Texas.
- *Monitored Natural Attenuation of MTBE as a Risk Management Option at Leaking Underground Storage Tank Sites*, (2005). Wilson, J. T., P. M. Kaiser and C. Adair. USEPA, EPA/600/R-04/1790.
- *Monitored Natural Attenuation of Inorganic Contaminants in Ground Water, Volume 1 - Technical Basis for Assessment* (2007). Ford, R. G., R. T. Wilkin, and R. W. Puls, USEPA, EPA/600/R-07/139.

- *Monitored Natural Attenuation of Inorganic Contaminants in Ground Water, Volume 2 - Assessment for Non-Radionuclides Including Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Nitrate, Perchlorate, and Selenium (2007).* Ford, R. G., R. T. Wilkin, and R. W. Puls, USEPA, EPA/600/R-07/140.

Both qualitative and quantitative assessments of COC concentrations and MNA processes will be presented in CMI Progress Reports.

**Subtask 2b – Develop a Preliminary MNA Program Evaluation**

After completion of the hydrogeologic and geochemical characterization, a Preliminary MNA Program Evaluation will be submitted to document the extent of MNA at the site.

**Subtask 2c – Establish Points of Compliance (POCs)**

Points of compliance (POCs) will be established down gradient of the principal contaminant plumes. The exact location of the POCs will be determined as part of the hydrogeologic and geochemical characterization. The POCs will be used to verify migration control and in Subtask 3b.

**Subtask 2d – Refine Compliance Monitoring**

Based on data collected during the proposed Phase Two activities identified above, the existing compliance monitoring programs will be refined and revised.

### **4.3.3 Groundwater Remedy Phase Three – Groundwater Restoration**

Phase Three includes the evaluation and application of long-term groundwater remedies.

#### **Work Performed to Date**

Long-term performance monitoring associated with the CAMU has been established in the CAMU Groundwater Monitoring Work Plan revised October 2008. The plan defines the criteria used to evaluate the performance of the overall CAMU. The plan also describes the methods, locations, frequency, and quality control procedures involved in data collection and describe how the data are compiled, analyzed, and evaluated.

#### **Work Proposed**

##### **Subtask 3a – Reassess Groundwater Conditions**

Once soil source removal activities are complete and groundwater conditions have stabilized, conditions will be reassessed. The positive EI determination suggests that monitored natural attenuation may be effective in controlling plume migration and ultimately restoring groundwater quality. Procedures for conducting this assessment, potentially applicable remedies, and procedures for remedy selection will be documented in a work plan.

##### **Subtask 3b – Evaluate Remedial Options**

Remedial options will be evaluated for the site. The remediation goal for the site is to meet the groundwater clean-up standards defined in Table 2b of the Statement of Basis. MNA is expected to be a primary component of the groundwater remedy.

##### **Subtask 3c – Performance Monitoring of the Groundwater Remedy**

A monitoring plan will be developed to document the performance of the groundwater remedy. This will include monitoring to demonstrate the long-term effectiveness of MNA or other potential remedies. The plan will define the criteria used to evaluate the performance of the remedy, such as MNA. The plan will also describe the methods, locations, frequency, and quality control procedures involved in data collection and will describe how the data will be compiled, analyzed, and evaluated.

### **4.4 Sediment and Surface Water Remediation**

This section presents the approach for implementing sediment and surface water remediation at BCP as detailed in the Statement of Basis, FDRTC, and CMI design. The below sections are a brief overview of surface water and sediment conditions and a summary of the planned corrective actions for BCP. Sediment removal activities will be

performed as part of SWMU remediation and CAMU West construction activities (Table 1). Design elements of sediment remediation such as waste and material handling requirements, traffic control, erosion control, etc. will be finalized in the Phase II CMI Design Report.

BCP is located east of the Refinery fence line adjacent to SWMU 6. The pond has approximately 3.25 acres of open water surface and currently receives freshwater inflow through two storm water drainage ditches at the pond's southern end. Formerly, the pond also received storm water from an outfall located within SWMU 6, but this outfall was blocked to prevent runoff discharge from the SWMU 6 to the pond. During high surface water conditions, the pond drains north to a tidal salt marsh via a man-made mosquito ditch maintained by the Mosquito Control District. Conversely, the pond may receive marine inflow during extreme high tide conditions or storm events via the mosquito ditch. Sediment impacts have been detected in the west side of BCP, possibly due to constituents in surface water runoff and/or via groundwater transport from SWMU 6.

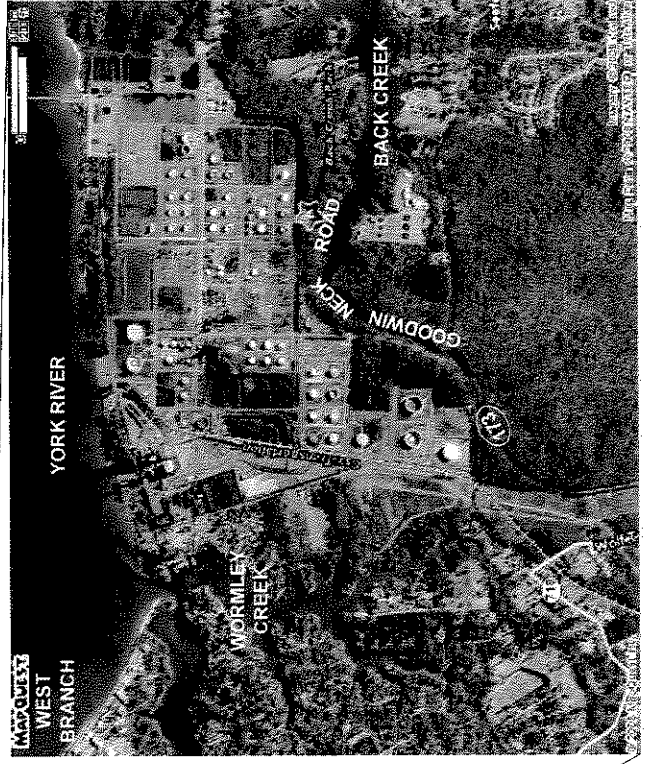
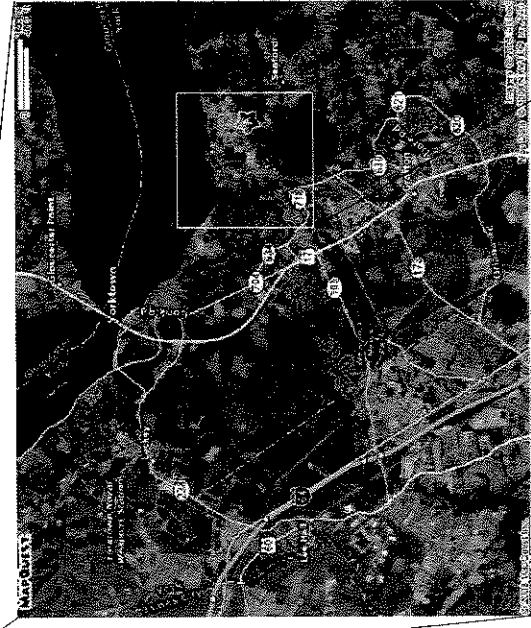
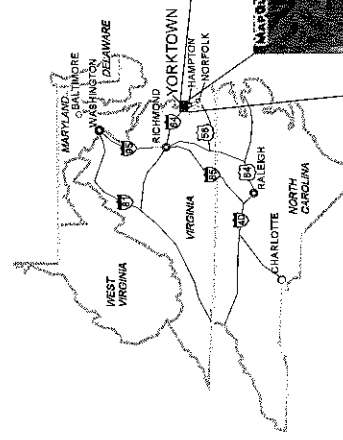
In accordance with the Statement of Basis, FDRTC, and CMI design, the corrective action for the BCP area consists of excavating surface sediment (1 to 1.5 feet bgs) in the proposed remedial footprint. The total area of the proposed remedial footprint is approximately 18,500 ft<sup>2</sup>, or 0.42 acres. As provided in the PMP, five verification samples will be collected from the excavation floor. Since the excavation is only 1 to 1.5 feet deep, sediment sidewall samples will not be collected. All verification samples will be analyzed for the BCP COCs (acetone and PAHs) and compared to the sediment RBRGs.


In order to ensure that corrective action is not required for additional BCP sediments, a preconstruction sampling event was performed at seven locations where elevated reporting limits were documented for previous samples. These samples were submitted for analysis of acetone and PAHs for comparison to the BCP sediment RBRGs (Table 2A of the Statement of Basis). Results of this sampling event were used to determine if additional areas of sediment impacts require corrective action and are presented in the final PMP. Sediment removed from the BCP area will be managed in the CAMU and habitat restoration performed for this area of BCP.

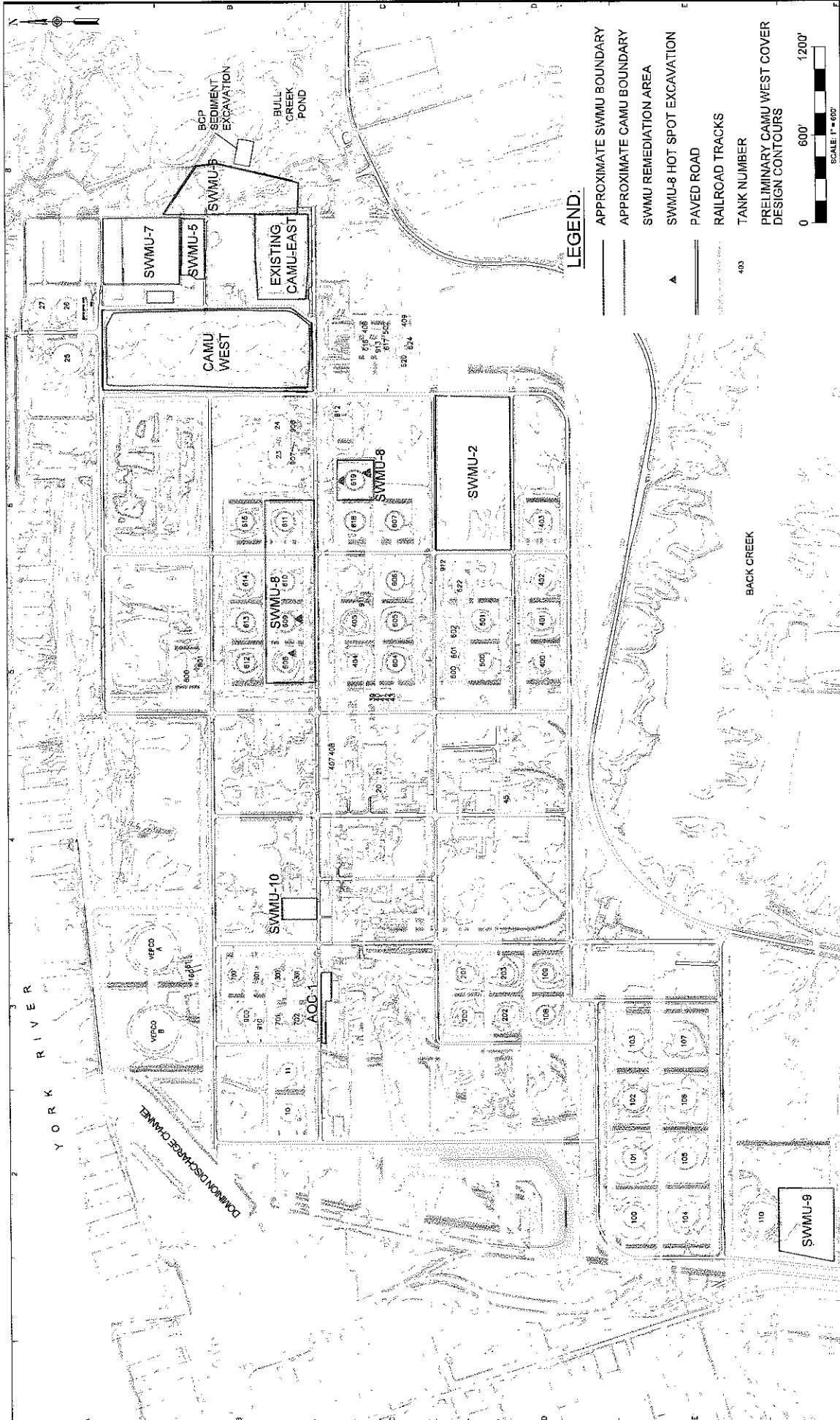
#### **4.5 Storm Water Management**

During SWMU/CAMU West construction, all contact storm water will be pumped to the above-ground sewer box SB58 for treatment in the Refinery WWTP. The Refinery WWTP will treat up to 300 gallons per minute of contact water during construction with any excess volume stored in Tanks 23 and 24 prior to treatment (total storage capacity of 12.6 million gallons). A preliminary and temporary contact storm water retention pond is illustrated on Figure 5.

Non-contact storm water during construction and post-construction will be handled in the existing storm water conveyance ditches and storage basins. The Stormwater Modeling Report (RETEC, 2004) demonstrated that the existing Refinery storm water system had adequate capacity for non-contact storm water during construction and for post-CAMU construction storm water.

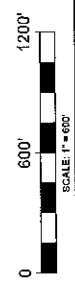


NO. [ ] REVISION [ ] DATE [ ]		CHD [ ] DATE [ ]		APRVD [ ] DATE [ ]		DATE [ ]	
<div style="display: flex; justify-content: space-between;"> <div>  <p> <b>Opal Group, Inc.</b>            25 S. Wiley Street            Centerville, OH 45814            Tel: 330-881-0007 Fax: 330-881-0008 www.opalgroupinc.com         </p> </div> <div> <p>           PROJECT NO: 040104 DATE: 25 SEPTEMBER 2003 DRAWN BY: JA         </p> </div> </div>							
PREPARED FOR: <b>WESTERN REFINING YORKTOWN, INC.</b> <b>YORKTOWN, VIRGINIA</b>				FIGURE NO.: <b>1</b>			
SITE LOCATION MAPS				SHEET NO.:			
REVISED CMI WORK PLAN							

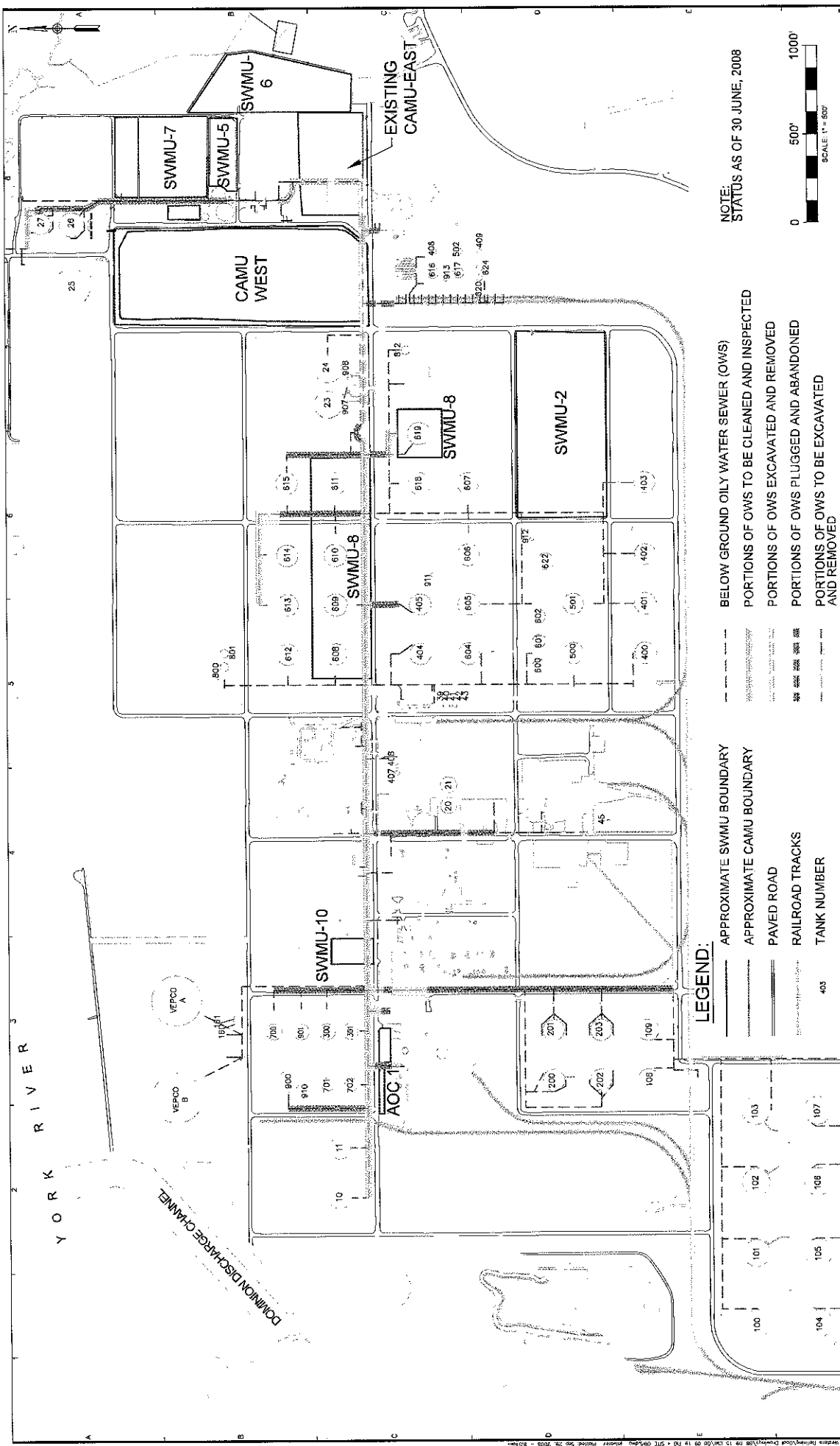


**LEGEND:**

- APPROXIMATE SWMU BOUNDARY
- APPROXIMATE CAMU BOUNDARY
- SWMU REMEDIATION AREA
- ▲ SWMU-8 HOT SPOT EXCAVATION
- PAVED ROAD
- RAILROAD TRACKS
- 403 TANK NUMBER
- PRELIMINARY CAMU WEST COVER DESIGN CONTOURS



BASE MAP PROVIDED BY WESTERN REFINING YORKTOWN, INC. VERIFY ACCURACY PRIOR TO USE.		 <b>Opal Group, Inc.</b> 25 S. Wilcox Street Chester Rock, CO 80604 Tel: 303-287-9027 • Fax: 303-287-1208 • www.opalgroupinc.com PROJECT: 06-016 DATE: 26 SEPTEMBER 2023 DRAWN BY: JA		PREPARED FOR: <b>WESTERN REFINING YORKTOWN, INC.</b> YORKTOWN, VIRGINIA		PHASE II SWMU AND CAMU WEST LOCATIONS REVISED CMI WORK PLAN		FIGURE NO. <b>3</b>	SHEET NO. 3
--	--	--	--	---	--	--	--	------------------------	----------------



PREPARED FOR: <b>WESTERN REFINING YORKTOWN, INC.</b> YORKTOWN, VIRGINIA				OILY WATER SEWER WORK STATUS REVISED CMI WORK PLAN			
PROJECT NO. 08-036 DATE 30 SEPTEMBER 2003 DRAWN BY: JA				FIGURE NO. 4 SHEET NO.			



**Opal Group, Inc.**  
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 Castle Rock, CO 80104  
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NO.	REVISION	DATE	CHKD.	DATE	APPROV.	DATE

BASE MAP PROVIDED BY WESTERN REFINING YORKTOWN, INC. VERIFY ACCURACY PRIOR TO USE.

# Western Refining Yorktown Inc.

## DMR Data

Permit No	VA0003018	Facility Name	Western Refining Yorktown Incorporated	Outfall No	001			
Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
NITROGEN, TOTAL (AS N) (CALENDAR YEAR)	Annual	NULL	215522	NULL	NULL	NULL	01-JAN-2006	31-DEC-2006
PHOSPHORUS, TOTAL (AS P) (CALENDAR YEAR)	Annual	NULL	23038	NULL	NULL	NULL	01-JAN-2006	31-DEC-2006
NITROGEN, TOTAL (AS N) (MONTHLY LOAD)	Month	NULL	11882	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.74	1.46	01-NOV-2006	30-NOV-2006
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.03	0.10	01-NOV-2006	30-NOV-2006
NITRITE+NITRATE-N,TOTAL	Month	NULL	NULL	NULL	0.24	0.96	01-NOV-2006	30-NOV-2006
ORTHOPHOSPHATE (AS P)	Month	NULL	NULL	NULL	0.15	0.30	01-NOV-2006	30-NOV-2006
TKN (N-KJEL)	Month	NULL	NULL	NULL	<QL	<QL	01-NOV-2006	30-NOV-2006
PHOSPHORUS, TOTAL (AS P) (MONTHLY LOAD)	Month	NULL	1337	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
FLOW	Month	68.9	69.2	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
PH	Month	NULL	NULL	7.7	NULL	8.0	01-NOV-2006	30-NOV-2006
PH	Month	NULL	NULL	7.7	NULL	8.1	01-DEC-2006	31-DEC-2006
FLOW	Month	50.6	66.7	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
PHOSPHORUS, TOTAL (AS P) (MONTHLY LOAD)	Month	NULL	2515	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
TKN (N-KJEL)	Month	NULL	NULL	NULL	0.15	0.60	01-DEC-2006	31-DEC-2006
ORTHOPHOSPHATE (AS P)	Month	NULL	NULL	NULL	<QL	<QL	01-DEC-2006	31-DEC-2006
NITRITE+NITRATE-N,TOTAL	Month	NULL	NULL	NULL	0.61	1.24	01-DEC-2006	31-DEC-2006
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	0.30	01-DEC-2006	31-DEC-2006
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.76	1.24	01-DEC-2006	31-DEC-2006
NITROGEN, TOTAL (AS N) (MONTHLY LOAD)	Month	NULL	14615	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
PH	Month	NULL	NULL	7.6	NULL	8.0	01-JAN-2007	31-JAN-2007
FLOW	Month	32.5	48.1	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
PHOSPHORUS, TOTAL (AS P) (MONTHLY LOAD)	Month	NULL	1458	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
TKN (N-KJEL)	Month	NULL	NULL	NULL	0.40	2.39	01-JAN-2007	31-JAN-2007
ORTHOPHOSPHATE (AS P)	Month	NULL	NULL	NULL	0.23	0.41	01-JAN-2007	31-JAN-2007
NITRITE+NITRATE-N,TOTAL	Month	NULL	NULL	NULL	1.53	9.19	01-JAN-2007	31-JAN-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.36	1.50	01-JAN-2007	31-JAN-2007
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.93	11.58	01-JAN-2007	31-JAN-2007
NITROGEN, TOTAL (AS N) (MONTHLY LOAD)	Month	NULL	4855	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
PH	Month	NULL	NULL	7.4	NULL	8.2	01-FEB-2007	28-FEB-2007
FLOW	Month	32.4	43.9	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
PHOSPHORUS, TOTAL (AS P) (MONTHLY LOAD)	Month	NULL	2020	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
TKN (N-KJEL)	Month	NULL	NULL	NULL	1.28	5.10	01-FEB-2007	28-FEB-2007
ORTHOPHOSPHATE (AS P)	Month	NULL	NULL	NULL	0.21	0.42	01-FEB-2007	28-FEB-2007
NITRITE+NITRATE-N,TOTAL	Month	NULL	NULL	NULL	2.51	8.29	01-FEB-2007	28-FEB-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	4.55	18.0	01-FEB-2007	28-FEB-2007
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	3.79	13.39	01-FEB-2007	28-FEB-2007
NITROGEN, TOTAL (AS N) (MONTHLY LOAD)	Month	NULL	8844	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
PH	Month	NULL	NULL	8.1	NULL	8.3	01-MAR-2007	31-MAR-2007
FLOW	Month	45.0	46.1	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
PHOSPHORUS, TOTAL (AS P) (MONTHLY LOAD)	Month	NULL	3378	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
TKN (N-KJEL)	Month	NULL	NULL	NULL	0.17	0.87	01-MAR-2007	31-MAR-2007
ORTHOPHOSPHATE (AS P)	Month	NULL	NULL	NULL	<QL	<QL	01-MAR-2007	31-MAR-2007
NITRITE+NITRATE-N,TOTAL	Month	NULL	NULL	NULL	0.31	1.25	01-MAR-2007	31-MAR-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.30	0.81	01-MAR-2007	31-MAR-2007
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.48	1.25	01-MAR-2007	31-MAR-2007
NITROGEN, TOTAL (AS N) (MONTHLY LOAD)	Month	NULL	10918	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
PH	Month	NULL	NULL	7.7	NULL	8.1	01-APR-2007	30-APR-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
FLOW	Month	50.9	69.2	NULL	NULL	NULL	01-APR-2007	30-APR-2007
PHOSPHORUS, TOTAL (AS P) (MONTHLY LOAD)	NULL	NULL	3073	NULL	NULL	NULL	01-APR-2007	30-APR-2007
TKN (N-KJEL)	NULL	NULL	NULL	NULL	0.31	0.67	01-APR-2007	30-APR-2007
NITROGEN, TOTAL (AS N) (MONTHLY LOAD)	NULL	NULL	12002	NULL	NULL	NULL	01-APR-2007	30-APR-2007
NITROGEN, TOTAL (AS N)	NULL	NULL	NULL	NULL	0.60	0.67	01-APR-2007	30-APR-2007
NITRITE+NITRATE-N,TOTAL	NULL	NULL	NULL	NULL	0.29	0.60	01-APR-2007	30-APR-2007
ORTHOPHOSPHATE (AS P)	NULL	NULL	NULL	NULL	0.07	0.14	01-APR-2007	30-APR-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.37	1.20	01-APR-2007	30-APR-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.13	NULL	01-MAY-2007	31-MAY-2007
FLOW	Month	72.3	74.2	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
PH	Month	NULL	NULL	7.5	NULL	7.9	01-MAY-2007	31-MAY-2007
FLOW	Month	57.9	75.3	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
PH	Month	NULL	NULL	7.8	NULL	8.2	01-JUN-2007	30-JUN-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.10	NULL	01-JUN-2007	30-JUN-2007
PH	Month	NULL	NULL	7.7	NULL	8.2	01-JUL-2007	31-JUL-2007
FLOW	Month	74.5	75.3	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.10	NULL	01-JUL-2007	31-JUL-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.11	NULL	01-AUG-2007	31-AUG-2007
FLOW	Month	73.4	75.3	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
PH	Month	NULL	NULL	7.2	NULL	8.0	01-AUG-2007	31-AUG-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.09	NULL	01-SEP-2007	30-SEP-2007
FLOW	Month	70.1	75.1	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
PH	Month	NULL	NULL	7.8	NULL	8.3	01-SEP-2007	30-SEP-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.15	NULL	01-OCT-2007	31-OCT-2007
FLOW	Month	67.9	75.2	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
PH	Month	NULL	NULL	7.3	NULL	8.4	01-OCT-2007	31-OCT-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
PH	Month	NULL	NULL	7.6	NULL	8.0	01-NOV-2007	30-NOV-2007
FLOW	Month	40.0	48.4	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.46	NULL	01-NOV-2007	30-NOV-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	NULL	01-DEC-2007	31-DEC-2007
FLOW	Month	48.1	48.7	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
PH	Month	NULL	NULL	7.5	NULL	8.1	01-DEC-2007	31-DEC-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.16	NULL	01-JAN-2008	31-JAN-2008
PH	Month	NULL	NULL	7.9	NULL	8.1	01-JAN-2008	31-JAN-2008
FLOW	Month	46.8	48.6	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
FLOW	Month	45.3	47.4	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
PH	Month	NULL	NULL	6.2	NULL	7.6	01-FEB-2008	29-FEB-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.08	NULL	01-FEB-2008	29-FEB-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.32	NULL	01-MAR-2008	31-MAR-2008
PH	Month	NULL	NULL	7.8	NULL	7.9	01-MAR-2008	31-MAR-2008
FLOW	Month	41.8	48.4	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
PH	Month	NULL	NULL	7.6	NULL	7.8	01-APR-2008	30-APR-2008
FLOW	Month	53.8	74.1	NULL	NULL	NULL	01-APR-2008	30-APR-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.44	NULL	01-APR-2008	30-APR-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	NULL	01-MAY-2008	31-MAY-2008
FLOW	Month	68.8	69.6	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
PH	Month	NULL	NULL	7.8	NULL	7.9	01-MAY-2008	31-MAY-2008
PH	Month	NULL	NULL	7.2	NULL	7.8	01-JUN-2008	30-JUN-2008
FLOW	Month	68.2	73.0	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	NULL	01-JUN-2008	30-JUN-2008
PH	Month	NULL	NULL	7.5	NULL	8.0	01-JUL-2008	31-JUL-2008
FLOW	Month	71.1	76.2	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.08	NULL	01-JUL-2008	31-JUL-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.15	NULL	01-AUG-2008	31-AUG-2008
FLOW	Month	66.3	72.0	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
PH	Month	NULL	NULL	7.6	NULL	8.0	01-AUG-2008	31-AUG-2008
PH	Month	NULL	NULL	7.5	NULL	8.0	01-SEP-2008	30-SEP-2008
FLOW	Month	69.6	74.1	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.13	NULL	01-SEP-2008	30-SEP-2008
PH	Month	NULL	NULL	7.3	NULL	7.9	01-OCT-2008	31-OCT-2008
FLOW	Month	69.4	70.7	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.08	NULL	01-OCT-2008	31-OCT-2008
PH	Month	NULL	NULL	7.7	NULL	8.1	01-NOV-2008	30-NOV-2008
FLOW	Month	65.5	68.4	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	NULL	01-NOV-2008	30-NOV-2008
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	NULL	01-DEC-2008	31-DEC-2008
FLOW	Month	45.5	45.8	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
PH	Month	NULL	NULL	7.8	NULL	8.4	01-DEC-2008	31-DEC-2008
PH	Month	NULL	NULL	7.1	NULL	8.0	01-JAN-2009	31-JAN-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.13	NULL	01-JAN-2009	31-JAN-2009
FLOW	Month	45.5	47.8	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.09	NULL	01-FEB-2009	28-FEB-2009
PH	Month	NULL	NULL	7.4	NULL	7.9	01-FEB-2009	28-FEB-2009
FLOW	Month	45.5	47.8	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
FLOW	Month	44.4	47.7	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
PH	Month	NULL	NULL	7.5	NULL	7.9	01-MAR-2009	31-MAR-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.07	NULL	01-MAR-2009	31-MAR-2009
FLOW	Month	44.1	47.5	NULL	NULL	NULL	01-APR-2009	30-APR-2009

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.24	NULL	01-APR-2009	30-APR-2009
PH	Month	NULL	NULL	7.1	NULL	7.8	01-APR-2009	30-APR-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.08	NULL	01-MAY-2009	31-MAY-2009
PH	Month	NULL	NULL	7.6	NULL	7.8	01-MAY-2009	31-MAY-2009
FLOW	Month	69.7	73.1	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
PH	Month	NULL	NULL	7.5	NULL	7.9	01-JUN-2009	30-JUN-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.39	NULL	01-JUN-2009	30-JUN-2009
FLOW	Month	69.9	71.1	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.40	NULL	01-JUL-2009	31-JUL-2009
FLOW	Month	70.9	73.2	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
PH	Month	NULL	NULL	7.3	NULL	8.0	01-JUL-2009	31-JUL-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.11	NULL	01-AUG-2009	31-AUG-2009
PH	Month	NULL	NULL	7.5	NULL	8.0	01-AUG-2009	31-AUG-2009
FLOW	Month	71.4	72.5	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
PH	Month	NULL	NULL	7.8	NULL	8.2	01-SEP-2009	30-SEP-2009
FLOW	Month	70.2	71.6	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	NULL	01-SEP-2009	30-SEP-2009
FLOW	Month	69.8	71.4	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	NULL	01-OCT-2009	31-OCT-2009
PH	Month	NULL	NULL	7.8	NULL	8.2	01-OCT-2009	31-OCT-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	<QL	NULL	01-NOV-2009	30-NOV-2009
FLOW	Month	70.1	72.0	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
PH	Month	NULL	NULL	6.9	NULL	7.9	01-NOV-2009	30-NOV-2009
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.04	NULL	01-DEC-2009	31-DEC-2009
PH	Month	NULL	NULL	7.1	NULL	7.5	01-DEC-2009	31-DEC-2009
FLOW	Month	68.5	70.8	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009

# Western Refining Yorktown Inc.

## DMR Data

Permit No	VA0003018	Facility Name	Western Refining Yorktown Incorporated	Outfall No	101			
Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
PH	Month	NULL	NULL	7.3	NULL	8.1	01-NOV-2006	30-NOV-2006
TSS	Month	166.5	277.8	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
OIL & GREASE	Month	19.0	39.9	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
CARBON, TOTAL ORGANIC	Month	282.9	350.0	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
SULFIDE, TOTAL (AS S)	Month	0.06	0.09	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
AMMONIA, AS N	Month	17.05	27.84	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.020	<0.0200	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
PHENOLS	Month	0.12	0.33	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
CHROMIUM, TOTAL (AS CR)	Month	<0.061	<0.061	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
BOD5	Month	55.8	164.3	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
FLOW	Month	1.41	1.74	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
FLOW	Month	0.98	1.46	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
BOD5	Month	66.0	271.8	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
CHROMIUM, TOTAL (AS CR)	Month	<0.006	<0.006	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
PHENOLS	Month	0.14	0.24	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.042	<0.042	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
AMMONIA, AS N	Month	19.41	66.97	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
SULFIDE, TOTAL (AS S)	Month	0.07	0.12	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
CARBON, TOTAL ORGANIC	Month	239.2	302.6	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
OIL & GREASE	Month	8.8	12.6	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
TSS	Month	96.3	150.0	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
PH	Month	NULL	NULL	7.6	NULL	7.8	01-DEC-2006	31-DEC-2006
BOD5	Month	41.4	96.0	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
CHROMIUM, TOTAL (AS CR)	Month	<0.058	<0.058	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
PHENOLS	Month	0.21	0.31	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.059	<0.059	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
AMMONIA, AS N	Month	5.66	12.89	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
SULFIDE, TOTAL (AS S)	Month	0.12	0.15	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
CARBON, TOTAL ORGANIC	Month	232.4	359.7	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
OIL & GREASE	Month	5.6	8.3	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
TSS	Month	186.9	369.6	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
PH	Month	NULL	NULL	7.3	NULL	7.7	01-JAN-2007	31-JAN-2007
FLOW	Month	1.18	1.44	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
BOD5	Month	45.2	75.9	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
CHROMIUM, TOTAL (AS CR)	Month	<0.032	<0.032	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
PHENOLS	Month	0.17	0.29	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.032	<0.032	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
AMMONIA, AS N	Month	6.11	7.48	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
SULFIDE, TOTAL (AS S)	Month	0.27	0.60	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
CARBON, TOTAL ORGANIC	Month	320.2	425.5	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
OIL & GREASE	Month	8.4	13.4	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
TSS	Month	327.3	591.4	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
PH	Month	NULL	NULL	7.0	NULL	7.8	01-FEB-2007	28-FEB-2007
FLOW	Month	1.18	1.52	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
PHENOLS	Month	0.49	1.59	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
SULFIDE, TOTAL (AS S)	Month	0.47	0.86	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
CARBON, TOTAL ORGANIC	Month	287.8	391.9	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
OIL & GREASE	Month	3.3	6.7	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
TSS	Month	103.6	137.9	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
PH	Month	NULL	NULL	7.6	NULL	8.1	01-MAR-2007	31-MAR-2007

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
1	FLOW	Month	1.13	1.31	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
2	BOD5	Month	40.8	82.0	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
3	CHROMIUM, TOTAL (AS CR)	Month	<0.018	<0.018	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
4	AMMONIA, AS N	Month	38.3	84.3	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
5	CHROMIUM, HEXAVALENT (AS CR)	Month	0.026	0.026	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
6	TSS	Month	176.5	328.5	NULL	NULL	NULL	01-APR-2007	30-APR-2007
7	CHROMIUM, TOTAL (AS CR)	Month	0.198	0.358	NULL	NULL	NULL	01-APR-2007	30-APR-2007
8	PH	Month	NULL	NULL	7.0	NULL	8.4	01-APR-2007	30-APR-2007
9	OIL & GREASE	Month	10.7	31.0	NULL	NULL	NULL	01-APR-2007	30-APR-2007
10	AMMONIA, AS N	Month	7.70	9.94	NULL	NULL	NULL	01-APR-2007	30-APR-2007
11	CARBON, TOTAL ORGANIC	Month	257.8	337.7	NULL	NULL	NULL	01-APR-2007	30-APR-2007
12	CHROMIUM, HEXAVALENT (AS CR)	Month	0.066	0.070	NULL	NULL	NULL	01-APR-2007	30-APR-2007
13	BOD5	Month	42.2	84.4	NULL	NULL	NULL	01-APR-2007	30-APR-2007
14	SULFIDE, TOTAL (AS S)	Month	0.38	1.12	NULL	NULL	NULL	01-APR-2007	30-APR-2007
15	PHENOLS	Month	0.18	0.27	NULL	NULL	NULL	01-APR-2007	30-APR-2007
16	FLOW	Month	1.23	1.68	NULL	NULL	NULL	01-APR-2007	30-APR-2007
17	SULFIDE, TOTAL (AS S)	Month	0.41	1.15	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
18	CHROMIUM, TOTAL (AS CR)	Month	0.071	0.071	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
19	FLOW	Month	1.08	1.49	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
20	AMMONIA, AS N	Month	7.26	9.82	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
21	TSS	Month	153.7	229.4	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
22	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.044	<0.044	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
23	OIL & GREASE	Month	18.7	38.9	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
24	CARBON, TOTAL ORGANIC	Month	296.3	434.4	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
25	PHENOLS	Month	0.23	0.40	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
26	BOD5	Month	51.3	102.0	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
27	PH	Month	NULL	NULL	7.1	NULL	7.8	01-MAY-2007	31-MAY-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
TSS	Month	78.4	183.4	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.057	<0.057	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
CARBON, TOTAL ORGANIC	Month	210.0	260.8	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
OIL & GREASE	Month	48.3	134.7	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
SULFIDE, TOTAL (AS S)	Month	0.31	0.71	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
AMMONIA, AS N	Month	18.17	51.91	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
CHROMIUM, TOTAL (AS CR)	Month	<0.057	<0.057	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
BOD5	Month	32.6	59.1	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
PH	Month	NULL	NULL	7.1	NULL	8.9	01-JUN-2007	30-JUN-2007
PHENOLS	Month	0.12	0.30	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
FLOW	Month	0.82	1.36	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
PHENOLS	Month	0.09	0.17	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
BOD5	Month	18.8	34.9	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
OIL & GREASE	Month	12.0	18.7	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
CARBON, TOTAL ORGANIC	Month	113.4	172.2	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
AMMONIA, AS N	Month	3.04	5.64	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
TSS	Month	60.4	110.4	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
FLOW	Month	0.77	1.35	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
SULFIDE, TOTAL (AS S)	Month	0.06	0.16	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
CHROMIUM, TOTAL (AS CR)	Month	<0.030	<0.030	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.030	<0.030	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
PH	Month	NULL	NULL	7.4	NULL	7.8	01-JUL-2007	31-JUL-2007
PH	Month	NULL	NULL	7.3	NULL	8.1	01-AUG-2007	31-AUG-2007
CHROMIUM, TOTAL (AS CR)	Month	0.038	0.038	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
TSS	Month	55.7	85.6	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
BOD5	Month	18.2	32.7	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
PHENOLS	Month	0.09	0.14	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.027	<0.027	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
FLOW	Month	0.84	1.23	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
AMMONIA, AS N	Month	2.65	3.98	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
OIL & GREASE	Month	3.0	8.8	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
CARBON, TOTAL ORGANIC	Month	88.0	102.3	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
SULFIDE, TOTAL (AS S)	Month	0.06	0.08	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.027	<0.027	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
BOD5	Month	18.8	26.1	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
FLOW	Month	0.82	1.24	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
AMMONIA, AS N	Month	5.46	9.17	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
OIL & GREASE	Month	5.3	10.8	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
CHROMIUM, TOTAL (AS CR)	Month	<0.267	<0.267	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
CARBON, TOTAL ORGANIC	Month	140.9	194.0	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
SULFIDE, TOTAL (AS S)	Month	0.05	0.12	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
PHENOLS	Month	0.16	0.34	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
TSS	Month	78.4	113.8	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
PH	Month	NULL	7.0	NULL	NULL	8.1	01-SEP-2007	30-SEP-2007
OIL & GREASE	Month	7.1	12.6	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
CHROMIUM, TOTAL (AS CR)	Month	<0.04	<0.04	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
SULFIDE, TOTAL (AS S)	Month	0.08	0.10	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
CARBON, TOTAL ORGANIC	Month	222.6	324.3	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
FLOW	Month	0.94	1.56	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
TSS	Month	178.0	237.0	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
BOD5	Month	21.7	28.3	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
PH	Month	NULL	7.0	NULL	NULL	8.0	01-OCT-2007	31-OCT-2007
CHROMIUM, HEXAVALENT (AS CR)	Month	<0.04	<0.04	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
AMMONIA, AS N	Month	14.64	39.36	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
32 PHENOLS	Month	0.53	1.27	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
33 AMMONIA, AS N	Month	41.41	75.61	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
34 PHENOLS	Month	0.38	0.58	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
35 OIL & GREASE	Month	11.5	21.4	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
36 CARBON, TOTAL ORGANIC	Month	253.6	300.3	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
37 BOD5	Month	32.6	56.1	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
38 CHROMIUM, HEXAVALENT (AS CR)	Month	<0.051	<0.051	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
39 CHROMIUM, TOTAL (AS CR)	Month	<0.051	<0.051	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
40 TSS	Month	175.7	241.4	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
41 PH	Month	NULL	NULL	7.3	NULL	7.8	01-NOV-2007	30-NOV-2007
42 FLOW	Month	0.98	1.25	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
43 SULFIDE, TOTAL (AS S)	Month	0.14	0.22	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
44 FLOW	Month	0.88	1.38	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
45 PHENOLS	Month	0.16	0.41	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
46 BOD5	Month	30.3	74.0	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
47 OIL & GREASE	Month	14.9	37.7	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
48 CARBON, TOTAL ORGANIC	Month	242.4	332.5	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
49 CHROMIUM, TOTAL (AS CR)	Month	<0.047	<0.047	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
50 AMMONIA, AS N	Month	58.48	199.59	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
51 PH	Month	NULL	NULL	7.0	NULL	8.4	01-DEC-2007	31-DEC-2007
52 TSS	Month	146.6	189.9	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
53 CHROMIUM, HEXAVALENT (AS CR)	Month	<0.047	<0.047	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
54 SULFIDE, TOTAL (AS S)	Month	0.14	0.23	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
55 TSS	Month	188.9	296.5	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
56 CARBON, TOTAL ORGANIC	Month	347.3	401.1	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
57 CHROMIUM, HEXAVALENT (AS CR)	Month	<0.056	<0.056	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
58 BOD5	Month	35.6	68.3	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
59	SULFIDE, TOTAL (AS S)	Month	0.14	0.28	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
60	AMMONIA, AS N	Month	11.61	43.65	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
61	PHENOLS	Month	0.16	0.20	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
62	CHROMIUM, TOTAL (AS CR)	Month	<0.056	<0.056	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
63	PH	Month	NULL	NULL	7.3	NULL	8.1	01-JAN-2008	31-JAN-2008
64	OIL & GREASE	Month	9.1	13.9	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
65	FLOW	Month	1.21	1.44	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
66	SULFIDE, TOTAL (AS S)	Month	0.15	0.30	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
67	BOD5	Month	27.0	40.1	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
68	CHROMIUM, TOTAL (AS CR)	Month	<0.037	<0.037	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
69	FLOW	Month	0.70	1.36	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
70	PH	Month	NULL	NULL	7.6	NULL	8.4	01-FEB-2008	29-FEB-2008
71	PHENOLS	Month	0.35	0.65	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
72	TSS	Month	257.7	476.6	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
73	AMMONIA, AS N	Month	137.1	430.3	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
74	OIL & GREASE	Month	12.1	28.6	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
75	CARBON, TOTAL ORGANIC	Month	246.7	300.9	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
76	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.037	<0.037	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
77	OIL & GREASE	Month	10.0	15.5	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
78	CARBON, TOTAL ORGANIC	Month	488.0	677.8	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
79	CHROMIUM, TOTAL (AS CR)	Month	<0.049	<0.049	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
80	PH	Month	NULL	NULL	7.8	NULL	8.4	01-MAR-2008	31-MAR-2008
81	FLOW	Month	1.31	1.55	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
82	TSS	Month	128.2	195.6	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
83	AMMONIA, AS N	Month	78.71	265.59	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
84	PHENOLS	Month	0.33	0.43	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
85	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.049	<0.049	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
36	BOD5	Month	68.4	123.0	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
37	SULFIDE, TOTAL (AS S)	Month	0.22	0.23	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
38	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.056	<0.056	NULL	NULL	NULL	01-APR-2008	30-APR-2008
39	PH	Month	NULL	NULL	7.4	NULL	7.8	01-APR-2008	30-APR-2008
30	FLOW	Month	1.03	1.35	NULL	NULL	NULL	01-APR-2008	30-APR-2008
31	OIL & GREASE	Month	18.7	45.4	NULL	NULL	NULL	01-APR-2008	30-APR-2008
32	SULFIDE, TOTAL (AS S)	Month	0.20	0.31	NULL	NULL	NULL	01-APR-2008	30-APR-2008
33	CHROMIUM, TOTAL (AS CR)	Month	<0.056	<0.056	NULL	NULL	NULL	01-APR-2008	30-APR-2008
34	TSS	Month	109.0	199.9	NULL	NULL	NULL	01-APR-2008	30-APR-2008
35	AMMONIA, AS N	Month	8.44	30.27	NULL	NULL	NULL	01-APR-2008	30-APR-2008
36	CARBON, TOTAL ORGANIC	Month	440.8	576.9	NULL	NULL	NULL	01-APR-2008	30-APR-2008
37	BOD5	Month	35.3	53.6	NULL	NULL	NULL	01-APR-2008	30-APR-2008
38	PHENOLS	Month	1.00	1.92	NULL	NULL	NULL	01-APR-2008	30-APR-2008
39	PH	Month	NULL	NULL	7.1	NULL	8.1	01-MAY-2008	31-MAY-2008
30	TSS	Month	227.6	570.9	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
31	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.051	<0.051	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
32	PHENOLS	Month	0.12	0.18	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
33	CARBON, TOTAL ORGANIC	Month	362.9	499.0	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
34	CHROMIUM, TOTAL (AS CR)	Month	<0.051	<0.051	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
35	BOD5	Month	60.6	152.2	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
36	FLOW	Month	1.08	1.39	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
37	OIL & GREASE	Month	5.0	8.4	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
38	SULFIDE, TOTAL (AS S)	Month	0.07	0.08	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
39	AMMONIA, AS N	Month	4.58	6.68	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
10	AMMONIA, AS N	Month	5.39	9.35	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
11	CHROMIUM, TOTAL (AS CR)	Month	<0.045	<0.045	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
12	PH	Month	NULL	NULL	7.1	NULL	7.8	01-JUN-2008	30-JUN-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
13	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.045	<0.045	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
14	PHENOLS	Month	0.05	0.09	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
15	FLOW	Month	0.77	1.39	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
16	BOD5	Month	26.5	44.4	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
17	TSS	Month	165.7	255.6	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
18	OIL & GREASE	Month	5.3	9.6	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
19	CARBON, TOTAL ORGANIC	Month	332.5	594.0	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
20	SULFIDE, TOTAL (AS S)	Month	0.06	0.11	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
21	PH	Month	NULL	NULL	7.2	NULL	7.6	01-JUL-2008	31-JUL-2008
22	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.040	<0.040	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
23	PHENOLS	Month	0.06	0.15	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
24	CHROMIUM, TOTAL (AS CR)	Month	<0.040	<0.040	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
25	TSS	Month	141.9	305.0	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
26	BOD5	Month	23.0	41.8	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
27	FLOW	Month	0.76	1.33	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
28	SULFIDE, TOTAL (AS S)	Month	0.04	0.09	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
29	CARBON, TOTAL ORGANIC	Month	313.7	533.6	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
30	AMMONIA, AS N	Month	4.54	13.26	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
31	OIL & GREASE	Month	1.4	2.0	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
32	SULFIDE, TOTAL (AS S)	Month	0.07	0.13	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
33	TSS	Month	156.2	304.2	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
34	PHENOLS	Month	0.06	0.12	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
35	BOD5	Month	34.6	54.6	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
36	AMMONIA, AS N	Month	16.72	31.51	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
37	CARBON, TOTAL ORGANIC	Month	368.6	475.9	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
38	OIL & GREASE	Month	5.1	7.4	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
39	PH	Month	NULL	NULL	7.0	NULL	7.7	01-AUG-2008	31-AUG-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
40	CHROMIUM, TOTAL (AS CR)	Month	<0.048	<0.048	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
41	FLOW	Month	1.07	1.51	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
42	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.048	<0.048	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
43	PH	Month	NULL	NULL	7.2	NULL	7.7	01-SEP-2008	30-SEP-2008
44	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.045	<0.045	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
45	PHENOLS	Month	0.15	0.20	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
46	CHROMIUM, TOTAL (AS CR)	Month	<0.045	<0.045	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
47	BOD5	Month	37.8	64.7	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
48	OIL & GREASE	Month	3.7	6.7	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
49	SULFIDE, TOTAL (AS S)	Month	0.07	0.10	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
50	AMMONIA, AS N	Month	8.43	18.83	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
51	FLOW	Month	0.99	1.36	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
52	TSS	Month	162.6	219.6	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
53	CARBON, TOTAL ORGANIC	Month	198.3	240.5	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
54	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.031	<0.031	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
55	FLOW	Month	0.98	1.36	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
56	AMMONIA, AS N	Month	5.54	11.15	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
57	PHENOLS	Month	0.04	0.09	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
58	TSS	Month	162.3	288.3	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
59	CHROMIUM, TOTAL (AS CR)	Month	<0.031	<0.031	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
60	BOD5	Month	37.6	47.5	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
61	PH	Month	NULL	NULL	7.3	NULL	8.0	01-OCT-2008	31-OCT-2008
62	OIL & GREASE	Month	9.0	12.8	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
63	SULFIDE, TOTAL (AS S)	Month	0.09	0.12	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
64	CARBON, TOTAL ORGANIC	Month	158.7	217.0	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
65	BOD5	Month	30.7	49.7	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
66	FLOW	Month	0.96	1.33	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
57	PHENOLS	Month	0.07	0.12	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
58	CARBON, TOTAL ORGANIC	Month	161.0	180.9	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
59	SULFIDE, TOTAL (AS S)	Month	0.06	0.10	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
70	TSS	Month	165.0	328.6	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
71	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.034	<0.034	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
72	AMMONIA, AS N	Month	5.98	13.96	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
73	OIL & GREASE	Month	10.7	18.2	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
74	CHROMIUM, TOTAL (AS CR)	Month	<0.034	<0.034	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
75	PH	Month	NULL	NULL	7.2	NULL	7.9	01-NOV-2008	30-NOV-2008
76	BOD5	Month	79.8	225.1	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
77	CHROMIUM, TOTAL (AS CR)	Month	<0.049	<0.049	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
78	PHENOLS	Month	0.11	0.17	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
79	TSS	Month	202.7	670.0	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
80	FLOW	Month	1.48	2.17	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
81	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.049	<0.049	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
82	PH	Month	NULL	NULL	7.3	NULL	8.0	01-DEC-2008	31-DEC-2008
83	AMMONIA, AS N	Month	75.72	165.21	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
84	SULFIDE, TOTAL (AS S)	Month	0.24	0.74	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
85	CARBON, TOTAL ORGANIC	Month	222.3	280.7	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
86	OIL & GREASE	Month	12.6	35.7	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
87	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.052	<0.052	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
88	FLOW	Month	1.49	2.52	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
89	BOD5	Month	87.1	128.8	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
90	PHENOLS	Month	0.10	0.19	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
91	TSS	Month	283.0	128.8	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
92	PH	Month	NULL	NULL	7.0	NULL	7.5	01-JAN-2009	31-JAN-2009
93	CHROMIUM, TOTAL (AS CR)	Month	<0.069	<0.069	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
34	AMMONIA, AS N	Month	23.89	77.65	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
35	SULFIDE, TOTAL (AS S)	Month	0.18	0.32	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
36	OIL & GREASE	Month	21.5	28.6	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
37	CARBON, TOTAL ORGANIC	Month	279.9	388.0	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
38	AMMONIA, AS N	Month	29.77	105.25	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
39	CHROMIUM, TOTAL (AS CR)	Month	<0.067	<0.067	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
40	TSS	Month	383.6	521.1	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
41	BOD5	Month	82.3	120.2	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
42	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.067	<0.067	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
43	OIL & GREASE	Month	9.2	13.0	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
44	SULFIDE, TOTAL (AS S)	Month	0.19	0.23	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
45	PHENOLS	Month	0.18	0.24	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
46	FLOW	Month	1.41	2.08	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
47	PH	Month	NULL	NULL	7.2	NULL	8.0	01-FEB-2009	28-FEB-2009
48	CARBON, TOTAL ORGANIC	Month	288.5	340.4	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
49	CHROMIUM, TOTAL (AS CR)	Month	<0.049	<0.049	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
50	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.049	<0.049	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
51	FLOW	Month	1.32	1.80	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
52	BOD5	Month	47.8	88.4	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
53	AMMONIA, AS N	Month	71.54	187.62	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
54	OIL & GREASE	Month	10.8	18.5	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
55	SULFIDE, TOTAL (AS S)	Month	0.06	0.17	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
56	TSS	Month	269.0	489.3	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
57	PH	Month	NULL	NULL	6.8	NULL	7.8	01-MAR-2009	31-MAR-2009
58	PHENOLS	Month	0.20	0.38	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
59	CARBON, TOTAL ORGANIC	Month	222.4	273.6	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
60	SULFIDE, TOTAL (AS S)	Month	0.19	0.29	NULL	NULL	NULL	01-APR-2009	30-APR-2009

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
21	TSS	Month	189.5	253.2	NULL	NULL	NULL	01-APR-2009	30-APR-2009
22	PH	Month	NULL	NULL	6.8	NULL	8.4	01-APR-2009	30-APR-2009
23	FLOW	Month	0.89	1.23	NULL	NULL	NULL	01-APR-2009	30-APR-2009
24	PHENOLS	Month	0.13	0.20	NULL	NULL	NULL	01-APR-2009	30-APR-2009
25	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.033	<0.033	NULL	NULL	NULL	01-APR-2009	30-APR-2009
26	BOD5	Month	42.4	63.8	NULL	NULL	NULL	01-APR-2009	30-APR-2009
27	CHROMIUM, TOTAL (AS CR)	Month	<0.033	<0.033	NULL	NULL	NULL	01-APR-2009	30-APR-2009
28	CARBON, TOTAL ORGANIC	Month	238.8	298.8	NULL	NULL	NULL	01-APR-2009	30-APR-2009
29	OIL & GREASE	Month	5.7	12.3	NULL	NULL	NULL	01-APR-2009	30-APR-2009
30	AMMONIA, AS N	Month	297.32	442.33	NULL	NULL	NULL	01-APR-2009	30-APR-2009
31	SULFIDE, TOTAL (AS S)	Month	0.05	0.08	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
32	AMMONIA, AS N	Month	229.22	350.39	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
33	FLOW	Month	1.17	1.64	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
34	TSS	Month	241.8	340.5	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
35	PH	Month	NULL	NULL	7.1	NULL	8.4	01-MAY-2009	31-MAY-2009
36	CARBON, TOTAL ORGANIC	Month	221.7	240.4	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
37	BOD5	Month	35.6	54.8	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
38	CHROMIUM, TOTAL (AS CR)	Month	<0.059	<0.059	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
39	OIL & GREASE	Month	11.8	19.1	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
40	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.059	<0.059	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
41	PHENOLS	Month	0.06	0.09	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
42	TSS	Month	240.3	367.3	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
43	CHROMIUM, TOTAL (AS CR)	Month	<0.036	<0.036	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
44	BOD5	Month	91.9	163.3	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
45	PHENOLS	Month	0.19	0.43	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
46	OIL & GREASE	Month	11.8	19.0	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
47	PH	Month	NULL	NULL	7.0	NULL	7.8	01-JUN-2009	30-JUN-2009

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
18	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.036	<0.036	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
19	SULFIDE, TOTAL (AS S)	Month	0.08	0.25	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
20	AMMONIA, AS N	Month	72.07	149.35	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
21	FLOW	Month	1.27	1.93	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
22	CARBON, TOTAL ORGANIC	Month	363.4	492.9	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
23	PHENOLS	Month	0.15	0.25	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
24	CHROMIUM, TOTAL (AS CR)	Month	<0.026	<0.026	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
25	BOD5	Month	44.9	73.5	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
26	CARBON, TOTAL ORGANIC	Month	282.3	405.1	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
27	SULFIDE, TOTAL (AS S)	Month	0.09	0.22	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
28	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.026	<0.026	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
29	OIL & GREASE	Month	35.3	108.8	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
30	TSS	Month	119.6	234.2	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
31	PH	Month	NULL	7.0	NULL	NULL	7.8	01-JUL-2009	31-JUL-2009
32	FLOW	Month	1.11	1.70	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
33	AMMONIA, AS N	Month	10.78	27.87	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
34	SULFIDE, TOTAL (AS S)	Month	0.26	0.29	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
35	AMMONIA, AS N	Month	5.04	14.28	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
36	PHENOLS	Month	0.10	0.16	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
37	CHROMIUM, TOTAL (AS CR)	Month	<0.046	<0.046	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
38	CHROMIUM, HEXAVALENT (AS CR)	Month	<0.034	<0.034	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
39	PH	Month	NULL	7.2	NULL	NULL	7.8	01-AUG-2009	31-AUG-2009
40	TSS	Month	147.4	248.4	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
41	BOD5	Month	62.4	99.4	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
42	OIL & GREASE	Month	20.9	27.8	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
43	FLOW	Month	1.43	2.94	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
44	CARBON, TOTAL ORGANIC	Month	419.3	451.9	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
75 SULFIDE, TOTAL (AS S)	Month	0.13	0.19	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
76 TSS	Month	114.7	175.9	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
77 CARBON, TOTAL ORGANIC	Month	395.9	471.9	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
78 PHENOLS	Month	0.15	0.19	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
79 BOD5	Month	36.6	55.5	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
30 CHROMIUM, HEXAVALENT (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
31 FLOW	Month	1.30	1.66	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
32 CHROMIUM, TOTAL (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
33 PH	Month	NULL	NULL	7.2	NULL	7.7	01-SEP-2009	30-SEP-2009
34 OIL & GREASE	Month	23.3	32.6	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
35 AMMONIA, AS N	Month	4.64	8.12	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
36 BOD5	Month	21.7	34.7	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
37 PH	Month	NULL	NULL	7.6	NULL	8.0	01-OCT-2009	31-OCT-2009
38 FLOW	Month	0.95	2.32	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
39 CHROMIUM, HEXAVALENT (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
30 PHENOLS	Month	0.10	0.17	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
31 CHROMIUM, TOTAL (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
32 SULFIDE, TOTAL (AS S)	Month	0.10	0.15	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
33 TSS	Month	98.0	163.3	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
34 AMMONIA, AS N	Month	2.15	3.57	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
35 OIL & GREASE	Month	13.8	23.5	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
36 CARBON, TOTAL ORGANIC	Month	106.8	163.5	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
37 PHENOLS	Month	0.12	0.24	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
38 TSS	Month	158.9	292.3	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
39 CHROMIUM, TOTAL (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
30 BOD5	Month	17.2	77.8	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
31 PH	Month	NULL	NULL	7.5	NULL	7.9	01-NOV-2009	30-NOV-2009

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
12	FLOW	Month	1.44	1.78	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
13	CHROMIUM, HEXAVALENT (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
14	CARBON, TOTAL ORGANIC	Month	241.2	299.4	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
15	SULFIDE, TOTAL (AS S)	Month	<QL	<QL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
16	OIL & GREASE	Month	<QL	<QL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
17	AMMONIA, AS N	Month	14.17	75.29	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
18	CARBON, TOTAL ORGANIC	Month	247.2	265.3	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
19	CHROMIUM, HEXAVALENT (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
20	PHENOLS	Month	0.05	0.19	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
21	CHROMIUM, TOTAL (AS CR)	Month	<QL	<QL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
22	TSS	Month	272.9	359.2	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
23	OIL & GREASE	Month	<QL	<QL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
24	PH	Month	NULL	NULL	7.5	NULL	7.9	01-DEC-2009	31-DEC-2009
25	AMMONIA, AS N	Month	8.90	20.06	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
26	BOD5	Month	25.8	86.5	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
27	FLOW	Month	1.54	1.73	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
28	SULFIDE, TOTAL (AS S)	Month	<QL	<QL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009

# Western Refining Yorktown Inc.

## DMR Data

Permit No	VA0003018	Facility Name	Western Refining Yorktown Incorporated	Outfall No	102				
Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
	FLOW	Month	71.3	72.0	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.8	01-NOV-2006	30-NOV-2006
	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-NOV-2006	30-NOV-2006
	FLOW	Month	52.5	70.0	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.2	01-DEC-2006	31-DEC-2006
	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	29	01-DEC-2006	31-DEC-2006
	FLOW	Month	45.9	46.8	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.1	01-JAN-2007	31-JAN-2007
	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-JAN-2007	31-JAN-2007
	FLOW	Month	42.0	42.8	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.8	01-FEB-2007	28-FEB-2007
	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	24	01-FEB-2007	28-FEB-2007
	FLOW	Month	NULL	NULL	NULL	NULL	34	01-MAR-2007	31-MAR-2007
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.6	01-MAR-2007	31-MAR-2007
	TEMPERATURE, WATER (DEG. C)	Month	44.1	44.8	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
	FLOW	Month	NULL	NULL	NULL	NULL	35	01-APR-2007	30-APR-2007
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	3.4	01-APR-2007	30-APR-2007
	TEMPERATURE, WATER (DEG. C)	Month	87.7	70.0	NULL	NULL	35	01-APR-2007	30-APR-2007
	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	3.4	01-APR-2007	30-APR-2007
	TEMPERATURE, WATER (DEG. C)	Month	72.3	72.8	NULL	NULL	35	01-MAY-2007	31-MAY-2007
	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.0	01-MAY-2007	31-MAY-2007

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
2	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	41	01-JUN-2007	30-JUN-2007
3	FLOW	Month	73.4	74.4	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
4	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	3.9	01-JUN-2007	30-JUN-2007
5	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.7	01-JUL-2007	31-JUL-2007
6	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	42	01-JUL-2007	31-JUL-2007
7	FLOW	Month	73.6	74.4	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
8	FLOW	Month	74.0	74.4	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
9	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	43	01-AUG-2007	31-AUG-2007
10	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.9	01-AUG-2007	31-AUG-2007
11	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.0	01-SEP-2007	30-SEP-2007
12	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	42	01-SEP-2007	30-SEP-2007
13	FLOW	Month	70.5	74.4	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
14	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.6	01-OCT-2007	31-OCT-2007
15	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	37	01-OCT-2007	31-OCT-2007
16	FLOW	Month	67.4	73.6	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
17	FLOW	Month	47.2	47.5	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
18	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	39	01-NOV-2007	30-NOV-2007
19	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	3.2	01-NOV-2007	30-NOV-2007
20	FLOW	Month	47.3	47.5	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
21	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-DEC-2007	31-DEC-2007
22	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.4	01-DEC-2007	31-DEC-2007
23	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.8	01-JAN-2008	31-JAN-2008
24	FLOW	Month	46.1	47.5	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
25	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-JAN-2008	31-JAN-2008
26	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.0	01-FEB-2008	29-FEB-2008

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
7	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	27	01-FEB-2008	29-FEB-2008
3	FLOW	Month	46.1	46.5	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
3	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	4.5	01-MAR-2008	31-MAR-2008
3	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	28	01-MAR-2008	31-MAR-2008
1	FLOW	Month	46.9	47.1	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
2	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	34	01-APR-2008	30-APR-2008
3	FLOW	Month	60.5	75.2	NULL	NULL	NULL	01-APR-2008	30-APR-2008
4	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.5	01-APR-2008	30-APR-2008
5	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.0	01-MAY-2008	31-MAY-2008
5	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	36	01-MAY-2008	31-MAY-2008
7	FLOW	Month	71.1	72.0	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
3	FLOW	Month	71.1	72.0	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
3	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	41	01-JUN-2008	30-JUN-2008
3	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	4.7	01-JUN-2008	30-JUN-2008
1	FLOW	Month	71.1	72.0	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
2	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	43	01-JUL-2008	31-JUL-2008
3	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	5.0	01-JUL-2008	31-JUL-2008
4	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.3	01-AUG-2008	31-AUG-2008
5	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	44	01-AUG-2008	31-AUG-2008
5	FLOW	Month	73.0	74.4	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
7	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.0	01-SEP-2008	30-SEP-2008
3	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	39	01-SEP-2008	30-SEP-2008
3	FLOW	Month	72.4	72.8	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
3	FLOW	Month	72.4	72.8	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
1	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.4	01-OCT-2008	31-OCT-2008

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
2	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	35	01-OCT-2008	31-OCT-2008
3	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	28	01-NOV-2008	30-NOV-2008
4	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.2	01-NOV-2008	30-NOV-2008
5	FLOW	Month	64.9	72.0	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
5	FLOW	Month	46.3	48.7	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
7	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	35	01-DEC-2008	31-DEC-2008
8	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.3	01-DEC-2008	31-DEC-2008
9	FLOW	Month	46.7	48.7	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
9	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	36	01-JAN-2009	31-JAN-2009
1	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.3	01-JAN-2009	31-JAN-2009
2	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.5	01-FEB-2009	28-FEB-2009
3	FLOW	Month	46.7	48.7	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
4	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	26	01-FEB-2009	28-FEB-2009
5	FLOW	Month	45.0	48.8	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
6	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.3	01-MAR-2009	31-MAR-2009
7	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-MAR-2009	31-MAR-2009
8	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	34	01-APR-2009	30-APR-2009
9	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.2	01-APR-2009	30-APR-2009
0	FLOW	Month	46.4	47.1	NULL	NULL	NULL	01-APR-2009	30-APR-2009
1	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	33	01-MAY-2009	31-MAY-2009
2	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.7	01-MAY-2009	31-MAY-2009
3	FLOW	Month	72.2	72.8	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
4	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	38	01-JUN-2009	30-JUN-2009
5	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	2.1	01-JUN-2009	30-JUN-2009
6	FLOW	Month	72.3	72.8	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
7	FLOW	Month	73.6	74.4	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
8	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	38	01-JUL-2009	31-JUL-2009
9	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.5	01-JUL-2009	31-JUL-2009
10	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.6	01-AUG-2009	31-AUG-2009
11	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	42	01-AUG-2009	31-AUG-2009
12	FLOW	Month	73.9	74.4	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
13	FLOW	Month	72.8	72.8	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
14	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	36	01-SEP-2009	30-SEP-2009
15	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.6	01-SEP-2009	30-SEP-2009
16	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	36	01-OCT-2009	31-OCT-2009
17	FLOW	Month	72.8	72.8	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
18	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.3	01-OCT-2009	31-OCT-2009
19	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	34	01-NOV-2009	30-NOV-2009
20	FLOW	Month	72.9	74.4	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
21	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	0.1	01-NOV-2009	30-NOV-2009
22	CARBON, TOTAL ORGANIC, NET INCREASE	Month	NULL	NULL	NULL	NULL	1.3	01-DEC-2009	31-DEC-2009
23	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	34	01-DEC-2009	31-DEC-2009
24	FLOW	Month	72.4	72.8	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009

# Western Refining Yorktown Inc.

## DMR Data

Permit No	VA000301	Facility Name	Western Refining Yorktown, Incorporated	Outfall No	002			
Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.01	1.27	01-NOV-2006	30-NOV-2006
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.10	0.15	01-NOV-2006	30-NOV-2006
TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	28	01-NOV-2006	30-NOV-2006
OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-NOV-2006	30-NOV-2006
CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	12.5	15.6	01-NOV-2006	30-NOV-2006
PH	Month	NULL	NULL	8.0	NULL	8.1	01-NOV-2006	30-NOV-2006
FLOW	Month	6.3	15.8	NULL	NULL	NULL	01-NOV-2006	30-NOV-2006
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.03	0.10	01-DEC-2006	31-DEC-2006
FLOW	Month	8.8	22.0	NULL	NULL	NULL	01-DEC-2006	31-DEC-2006
PH	Month	NULL	NULL	7.9	NULL	8.7	01-DEC-2006	31-DEC-2006
CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	12.3	13.1	01-DEC-2006	31-DEC-2006
OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-DEC-2006	31-DEC-2006
TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	23	01-DEC-2006	31-DEC-2006
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.95	1.78	01-DEC-2006	31-DEC-2006
FLOW	Month	7.4	28.9	NULL	NULL	NULL	01-JAN-2007	31-JAN-2007
PH	Month	NULL	NULL	7.3	NULL	8.0	01-JAN-2007	31-JAN-2007
CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	9.1	14.5	01-JAN-2007	31-JAN-2007
OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JAN-2007	31-JAN-2007
TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	19	01-JAN-2007	31-JAN-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.02	0.10	01-JAN-2007	31-JAN-2007
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.43	0.92	01-JAN-2007	31-JAN-2007
NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.82	4.00	01-FEB-2007	28-FEB-2007
PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	<QL	<QL	01-FEB-2007	28-FEB-2007

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
4	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	11	01-FEB-2007	28-FEB-2007
5	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-FEB-2007	28-FEB-2007
6	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	15.1	20.8	01-FEB-2007	28-FEB-2007
7	PH	Month	NULL	NULL	7.4	NULL	8.1	01-FEB-2007	28-FEB-2007
3	FLOW	Month	10.0	28.9	NULL	NULL	NULL	01-FEB-2007	28-FEB-2007
3	FLOW	Month	0.7	2.0	NULL	NULL	NULL	01-MAR-2007	31-MAR-2007
3	PH	Month	NULL	NULL	7.6	NULL	9.0	01-MAR-2007	31-MAR-2007
1	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	12.4	14.6	01-MAR-2007	31-MAR-2007
2	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-MAR-2007	31-MAR-2007
3	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	15	01-MAR-2007	31-MAR-2007
4	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.15	0.21	01-MAR-2007	31-MAR-2007
5	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.90	1.46	01-MAR-2007	31-MAR-2007
6	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	13.5	18.7	01-APR-2007	30-APR-2007
7	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	23	01-APR-2007	30-APR-2007
3	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.13	0.20	01-APR-2007	30-APR-2007
3	FLOW	Month	20.3	81.8	NULL	NULL	NULL	01-APR-2007	30-APR-2007
3	PH	Month	NULL	NULL	7.4	NULL	9.0	01-APR-2007	30-APR-2007
1	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.62	1.09	01-APR-2007	30-APR-2007
2	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-APR-2007	30-APR-2007
3	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	0.21	01-MAY-2007	31-MAY-2007
4	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	15.5	22.2	01-MAY-2007	31-MAY-2007
5	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	26	01-MAY-2007	31-MAY-2007
5	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.03	1.28	01-MAY-2007	31-MAY-2007
7	OIL & GREASE	Month	NULL	NULL	NULL	3.3	7.4	01-MAY-2007	31-MAY-2007
3	FLOW	Month	10.5	28.9	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
3	PH	Month	NULL	NULL	7.3	NULL	7.9	01-MAY-2007	31-MAY-2007
3	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.46	1.78	01-JUN-2007	30-JUN-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
1 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.09	0.12	01-JUN-2007	30-JUN-2007
2 OIL & GREASE	Month	NULL	NULL	NULL	3.0	12.1	01-JUN-2007	30-JUN-2007
3 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	16.1	19.6	01-JUN-2007	30-JUN-2007
4 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	31	01-JUN-2007	30-JUN-2007
5 FLOW	Month	5.1	5.6	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
6 PH	Month	NULL	NULL	7.7	NULL	8.9	01-JUN-2007	30-JUN-2007
7 PH	Month	NULL	NULL	7.7	NULL	8.5	01-JUL-2007	31-JUL-2007
8 FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
9 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	27	01-JUL-2007	31-JUL-2007
0 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.02	0.10	01-JUL-2007	31-JUL-2007
1 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.65	1.49	01-JUL-2007	31-JUL-2007
2 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	8.7	11.3	01-JUL-2007	31-JUL-2007
3 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JUL-2007	31-JUL-2007
4 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.56	2.19	01-AUG-2007	31-AUG-2007
5 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	28	01-AUG-2007	31-AUG-2007
6 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	9.0	13.5	01-AUG-2007	31-AUG-2007
7 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-AUG-2007	31-AUG-2007
8 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.14	0.23	01-AUG-2007	31-AUG-2007
9 FLOW	Month	3.8	5.6	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
0 PH	Month	NULL	NULL	7.6	NULL	8.5	01-AUG-2007	31-AUG-2007
1 PH	Month	NULL	NULL	7.7	NULL	8.5	01-SEP-2007	30-SEP-2007
2 FLOW	Month	3.8	5.6	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
3 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.21	1.76	01-SEP-2007	30-SEP-2007
4 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	6.8	7.2	01-SEP-2007	30-SEP-2007
5 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-SEP-2007	30-SEP-2007
6 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	0.13	01-SEP-2007	30-SEP-2007
7 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	28	01-SEP-2007	30-SEP-2007



Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
15	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.02	2.06	01-JAN-2008	31-JAN-2008
16	PH	Month	NULL	NULL	7.7	NULL	9.0	01-FEB-2008	29-FEB-2008
17	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
18	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-FEB-2008	29-FEB-2008
19	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.78	1.40	01-FEB-2008	29-FEB-2008
20	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	11.5	12.8	01-FEB-2008	29-FEB-2008
21	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.03	0.11	01-FEB-2008	29-FEB-2008
22	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	16	01-FEB-2008	29-FEB-2008
23	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	<QL	<QL	01-MAR-2008	31-MAR-2008
24	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	17.8	31.5	01-MAR-2008	31-MAR-2008
25	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-MAR-2008	31-MAR-2008
26	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	17	01-MAR-2008	31-MAR-2008
27	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.77	1.31	01-MAR-2008	31-MAR-2008
28	FLOW	Month	14.5	36.5	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
29	PH	Month	NULL	NULL	7.4	NULL	7.9	01-MAR-2008	31-MAR-2008
30	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-APR-2008	30-APR-2008
31	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	19	01-APR-2008	30-APR-2008
32	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.26	2.05	01-APR-2008	30-APR-2008
33	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	<QL	<QL	01-APR-2008	30-APR-2008
34	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	21.8	23.8	01-APR-2008	30-APR-2008
35	FLOW	Month	8.1	15.8	NULL	NULL	NULL	01-APR-2008	30-APR-2008
36	PH	Month	NULL	NULL	7.5	NULL	8.3	01-APR-2008	30-APR-2008
37	PH	Month	NULL	NULL	7.6	NULL	8.6	01-MAY-2008	31-MAY-2008
38	FLOW	Month	9.3	15.8	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
39	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	14.2	25.9	01-MAY-2008	31-MAY-2008
40	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	<QL	<QL	01-MAY-2008	31-MAY-2008
41	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-MAY-2008	31-MAY-2008

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
32 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	25	01-MAY-2008	31-MAY-2008
33 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.97	1.65	01-MAY-2008	31-MAY-2008
34 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	19.2	27.8	01-JUN-2008	30-JUN-2008
35 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.66	0.82	01-JUN-2008	30-JUN-2008
36 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-JUN-2008	30-JUN-2008
37 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.07	0.16	01-JUN-2008	30-JUN-2008
38 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JUN-2008	30-JUN-2008
39 FLOW	Month	11.3	15.8	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
40 PH	Month	NULL	NULL	7.6	NULL	7.9	01-JUN-2008	30-JUN-2008
41 PH	Month	NULL	NULL	7.9	NULL	8.3	01-JUL-2008	31-JUL-2008
42 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JUL-2008	31-JUL-2008
43 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	31	01-JUL-2008	31-JUL-2008
44 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	14.9	24.2	01-JUL-2008	31-JUL-2008
45 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	0.07	01-JUL-2008	31-JUL-2008
46 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.77	1.03	01-JUL-2008	31-JUL-2008
47 FLOW	Month	10.2	10.2	NULL	NULL	NULL	01-JUL-2008	31-JUL-2008
48 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.08	0.09	01-AUG-2008	31-AUG-2008
49 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-AUG-2008	31-AUG-2008
50 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.84	1.05	01-AUG-2008	31-AUG-2008
51 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-AUG-2008	31-AUG-2008
52 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	10.5	13.4	01-AUG-2008	31-AUG-2008
53 FLOW	Month	11.8	15.8	NULL	NULL	NULL	01-AUG-2008	31-AUG-2008
54 PH	Month	NULL	NULL	7.0	NULL	8.3	01-AUG-2008	31-AUG-2008
55 PH	Month	NULL	NULL	7.2	NULL	8.3	01-SEP-2008	30-SEP-2008
56 FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
57 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.10	0.13	01-SEP-2008	30-SEP-2008
58 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.39	2.25	01-SEP-2008	30-SEP-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
59	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	29	01-SEP-2008	30-SEP-2008
60	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-SEP-2008	30-SEP-2008
61	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	5.6	6.0	01-SEP-2008	30-SEP-2008
62	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	5.1	6.8	01-OCT-2008	31-OCT-2008
63	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	22	01-OCT-2008	31-OCT-2008
64	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.05	0.07	01-OCT-2008	31-OCT-2008
65	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-OCT-2008	31-OCT-2008
66	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.90	1.19	01-OCT-2008	31-OCT-2008
67	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
68	PH	Month	NULL	NULL	8.0	NULL	9.0	01-OCT-2008	31-OCT-2008
69	PH	Month	NULL	NULL	7.6	NULL	8.6	01-NOV-2008	30-NOV-2008
70	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-NOV-2008	30-NOV-2008
71	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-NOV-2008	30-NOV-2008
72	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.05	0.06	01-NOV-2008	30-NOV-2008
73	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	20	01-NOV-2008	30-NOV-2008
74	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.05	1.65	01-NOV-2008	30-NOV-2008
75	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	5.4	6.8	01-NOV-2008	30-NOV-2008
76	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	5.6	7.2	01-DEC-2008	31-DEC-2008
77	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.53	2.96	01-DEC-2008	31-DEC-2008
78	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-DEC-2008	31-DEC-2008
79	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	0.11	01-DEC-2008	31-DEC-2008
80	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	20	01-DEC-2008	31-DEC-2008
81	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
82	PH	Month	NULL	NULL	7.2	NULL	8.4	01-DEC-2008	31-DEC-2008
83	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.04	0.05	01-JAN-2009	31-JAN-2009
84	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JAN-2009	31-JAN-2009
85	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	3.51	11.63	01-JAN-2009	31-JAN-2009

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
36 FLOW	Month	6.7	10.2	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
37 PH	Month	NULL	NULL	7.3	NULL	7.8	01-JAN-2009	31-JAN-2009
38 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	6.5	8.2	01-JAN-2009	31-JAN-2009
39 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	21	01-JAN-2009	31-JAN-2009
40 PH	Month	NULL	NULL	7.9	NULL	8.6	01-FEB-2009	28-FEB-2009
41 FLOW	Month	11.6	15.8	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
42 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.55	0.71	01-FEB-2009	28-FEB-2009
43 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	15	01-FEB-2009	28-FEB-2009
44 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-FEB-2009	28-FEB-2009
45 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	4.5	4.9	01-FEB-2009	28-FEB-2009
46 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.04	0.07	01-FEB-2009	28-FEB-2009
47 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	6.9	8.0	01-MAR-2009	31-MAR-2009
48 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.06	0.12	01-MAR-2009	31-MAR-2009
49 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.91	1.70	01-MAR-2009	31-MAR-2009
50 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	23	01-MAR-2009	31-MAR-2009
51 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-MAR-2009	31-MAR-2009
52 PH	Month	NULL	NULL	7.4	NULL	8.3	01-MAR-2009	31-MAR-2009
53 FLOW	Month	6.7	10.2	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
54 FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-APR-2009	30-APR-2009
55 TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	27	01-APR-2009	30-APR-2009
56 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.54	2.46	01-APR-2009	30-APR-2009
57 OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-APR-2009	30-APR-2009
58 PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	0.14	01-APR-2009	30-APR-2009
59 PH	Month	NULL	NULL	8.0	NULL	8.4	01-APR-2009	30-APR-2009
60 CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	9.3	10.4	01-APR-2009	30-APR-2009
61 PH	Month	NULL	NULL	7.3	NULL	8.5	01-MAY-2009	31-MAY-2009
62 NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.13	1.39	01-MAY-2009	31-MAY-2009

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
13	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	9.8	11.8	01-MAY-2009	31-MAY-2009
14	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-MAY-2009	31-MAY-2009
15	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.12	0.14	01-MAY-2009	31-MAY-2009
16	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	23	01-MAY-2009	31-MAY-2009
17	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-MAY-2009	31-MAY-2009
18	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JUN-2009	30-JUN-2009
19	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-JUN-2009	30-JUN-2009
20	PH	Month	NULL	NULL	7.4	NULL	7.9	01-JUN-2009	30-JUN-2009
21	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	6.4	7.9	01-JUN-2009	30-JUN-2009
22	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.07	0.15	01-JUN-2009	30-JUN-2009
23	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.65	1.70	01-JUN-2009	30-JUN-2009
24	FLOW	Month	9.6	15.8	NULL	NULL	NULL	01-JUN-2009	30-JUN-2009
25	FLOW	Month	13.2	15.8	NULL	NULL	NULL	01-JUL-2009	31-JUL-2009
26	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	7.3	8.5	01-JUL-2009	31-JUL-2009
27	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-JUL-2009	31-JUL-2009
28	PH	Month	NULL	NULL	7.6	NULL	7.9	01-JUL-2009	31-JUL-2009
29	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	36	01-JUL-2009	31-JUL-2009
30	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.25	0.75	01-JUL-2009	31-JUL-2009
31	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.03	2.44	01-JUL-2009	31-JUL-2009
32	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-AUG-2009	31-AUG-2009
33	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	34	01-AUG-2009	31-AUG-2009
34	PH	Month	NULL	NULL	7.3	NULL	8.1	01-AUG-2009	31-AUG-2009
35	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.23	0.60	01-AUG-2009	31-AUG-2009
36	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	11.0	24.1	01-AUG-2009	31-AUG-2009
37	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.03	0.13	01-AUG-2009	31-AUG-2009
38	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-AUG-2009	31-AUG-2009
39	FLOW	Month	24.6	81.8	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
40	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	8.9	10.7	01-SEP-2009	30-SEP-2009
41	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.03	1.63	01-SEP-2009	30-SEP-2009
42	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-SEP-2009	30-SEP-2009
43	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	30	01-SEP-2009	30-SEP-2009
44	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.11	0.18	01-SEP-2009	30-SEP-2009
45	PH	Month	NULL	NULL	7.9	NULL	8.3	01-SEP-2009	30-SEP-2009
46	PH	Month	NULL	NULL	7.8	NULL	9.2	01-OCT-2009	31-OCT-2009
47	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.08	0.13	01-OCT-2009	31-OCT-2009
48	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.18	2.03	01-OCT-2009	31-OCT-2009
49	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	6.9	10.4	01-OCT-2009	31-OCT-2009
50	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
51	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-OCT-2009	31-OCT-2009
52	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	22	01-OCT-2009	31-OCT-2009
53	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	1.18	2.64	01-NOV-2009	30-NOV-2009
54	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	25	01-NOV-2009	30-NOV-2009
55	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	8.7	15.3	01-NOV-2009	30-NOV-2009
56	PH	Month	NULL	NULL	7.2	NULL	7.9	01-NOV-2009	30-NOV-2009
57	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.15	0.30	01-NOV-2009	30-NOV-2009
58	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-NOV-2009	30-NOV-2009
59	FLOW	Month	5.6	5.6	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
60	FLOW	Month	8.1	15.8	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
61	TEMPERATURE, WATER (DEG. C)	Month	NULL	NULL	NULL	NULL	18	01-DEC-2009	31-DEC-2009
62	NITROGEN, TOTAL (AS N)	Month	NULL	NULL	NULL	0.94	1.37	01-DEC-2009	31-DEC-2009
63	PHOSPHORUS, TOTAL (AS P)	Month	NULL	NULL	NULL	0.22	0.25	01-DEC-2009	31-DEC-2009
64	OIL & GREASE	Month	NULL	NULL	NULL	<QL	<QL	01-DEC-2009	31-DEC-2009
65	PH	Month	NULL	NULL	7.0	NULL	7.5	01-DEC-2009	31-DEC-2009
66	CARBON, TOTAL ORGANIC	Month	NULL	NULL	NULL	10.3	11.8	01-DEC-2009	31-DEC-2009

# Western Refining Yorktown Inc.

## DMR Data

emit No		VA0003018		Facility Name		Western Refining Yorktown Incorporated		Outfall No		201							
Parameter Description		Reporting Frequency		QTYAVG		QTYMAX		CONCMIN		CONCAVG		CONCMAX		Monitoring Start Date		Monitoring End Date	
CL2, INST RES MAX		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
NAPHTHALENE (AS C10H8)		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
TOTAL XYLENES		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
ETHYLBENZENE		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
TOLUENE (AS C7H8)		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
BENZENE (AS C6H6)		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
PH		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
FLOW		Month		NULL		NULL		NULL		NULL		NULL		01-NOV-2006		30-NOV-2006	
PH		Month		NULL		NULL		7.7		NULL		8.0		01-DEC-2006		31-DEC-2006	
PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
BENZENE (AS C6H6)		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
TOLUENE (AS C7H8)		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
ETHYLBENZENE		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
TOTAL XYLENES		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
NAPHTHALENE (AS C10H8)		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
CL2, INST RES MAX		Month		NULL		NULL		NULL		NULL		<QL		01-DEC-2006		31-DEC-2006	
FLOW		Month		NULL		NULL		1.20		NULL		NULL		01-DEC-2006		31-DEC-2006	
NAPHTHALENE (AS C10H8)		Month		NULL		NULL		NULL		NULL		NULL		01-JAN-2007		31-JAN-2007	
FLOW		Month		NULL		NULL		NULL		NULL		NULL		01-JAN-2007		31-JAN-2007	
PH		Month		NULL		NULL		NULL		NULL		NULL		01-JAN-2007		31-JAN-2007	
PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE		Month		NULL		NULL		NULL		NULL		NULL		01-JAN-2007		31-JAN-2007	



Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2007	30-APR-2007
TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
FLOW	Month	NULL	0.7	NULL	NULL	NULL	01-MAY-2007	31-MAY-2007
PH	Month	NULL	NULL	7.8	NULL	7.8	01-MAY-2007	31-MAY-2007
PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	<QL	01-MAY-2007	31-MAY-2007
TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
PH	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2007	30-JUN-2007
TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007

Parameter Description		Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
5	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
3	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
7	PH	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
3	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
3	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
3	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
3	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-JUL-2007	31-JUL-2007
2	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
3	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
4	PH	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
5	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
3	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
7	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
3	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
3	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
3	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-AUG-2007	31-AUG-2007
4	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
2	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
3	PH	Month	NULL	NULL	7.8	NULL	7.8	01-SEP-2007	30-SEP-2007
4	FLOW	Month	NULL	0.40	NULL	NULL	NULL	01-SEP-2007	30-SEP-2007
5	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
3	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
7	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
3	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
3	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	<QL	01-SEP-2007	30-SEP-2007
30	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
1 TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007
2 FLOW	Month	NULL	0.8	NULL	NULL	NULL	01-OCT-2007	31-OCT-2007
3 PH	Month	NULL	NULL	7.7	NULL	7.7	01-OCT-2007	31-OCT-2007
4 BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007
5 CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007
6 NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007
7 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007
8 ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	<QL	01-OCT-2007	31-OCT-2007
9 BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
10 PH	Month	NULL	NULL	7.6	NULL	7.7	01-NOV-2007	30-NOV-2007
11 PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
12 FLOW	Month	NULL	0.66	NULL	NULL	NULL	01-NOV-2007	30-NOV-2007
13 TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
14 CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
15 NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
16 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
17 ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	<QL	01-NOV-2007	30-NOV-2007
18 PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
19 TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
20 BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
21 FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
22 PH	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
23 CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
24 NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
25 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
26 ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2007	31-DEC-2007
27 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
28	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
29	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
30	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
31	PH	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
32	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
33	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
34	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
35	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2008	31-JAN-2008
36	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
37	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
38	PH	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
39	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
40	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
41	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
42	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
43	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
44	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2008	29-FEB-2008
45	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
46	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
47	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
48	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
49	PH	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
50	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
51	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
52	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008
53	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2008	31-MAR-2008

Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
54 TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
55 PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
56 FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
57 BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
58 PH	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
59 CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
60 NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
61 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
62 ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-APR-2008	30-APR-2008
63 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
64 PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
65 FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
66 PH	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
67 BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
68 CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
69 NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
70 TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
71 ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-MAY-2008	31-MAY-2008
72 BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
73 PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
74 FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
75 PH	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
76 CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
77 NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
78 TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008
79 TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-JUN-2008	30-JUN-2008



	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
36	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
37	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2008	30-SEP-2008
38	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
39	PH	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
40	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
41	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
42	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
43	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
44	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
45	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
46	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2008	31-OCT-2008
47	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	0.14	01-NOV-2008	30-NOV-2008
48	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	4.6	01-NOV-2008	30-NOV-2008
49	PH	Month	NULL	7.7	7.7	7.7	7.7	01-NOV-2008	30-NOV-2008
50	FLOW	Month	NULL	5.60	5.60	5.60	5.60	01-NOV-2008	30-NOV-2008
51	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	X	01-NOV-2008	30-NOV-2008
52	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	1.8	01-NOV-2008	30-NOV-2008
53	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	16	01-NOV-2008	30-NOV-2008
54	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	20	01-NOV-2008	30-NOV-2008
55	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	3.5	01-NOV-2008	30-NOV-2008
56	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
57	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
58	PH	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
59	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
60	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
61	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
32	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
33	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
34	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2008	31-DEC-2008
35	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
36	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
37	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
38	PH	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
39	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
40	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
41	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
42	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
43	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-JAN-2009	31-JAN-2009
44	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
45	PH	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
46	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
47	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
48	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
49	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
50	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
51	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
52	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-FEB-2009	28-FEB-2009
53	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
54	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
55	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
56	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009
57	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-MAR-2009	31-MAR-2009

[illegible]

[illegible]

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
10	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
11	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
12	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
13	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
14	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
15	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-SEP-2009	30-SEP-2009
16	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
17	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
18	PH	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
19	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
20	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
21	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
22	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
23	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
24	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-OCT-2009	31-OCT-2009
25	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
26	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
27	PH	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
28	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
29	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
30	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
31	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
32	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
33	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-NOV-2009	30-NOV-2009
34	TOLUENE (AS C7H8)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
35	ETHYLBENZENE	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
36	TOTAL XYLENES	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009

	Parameter Description	Reporting Frequency	QTYAVG	QTYMAX	CONCMIN	CONCAVG	CONCMAX	Monitoring Start Date	Monitoring End Date
37	NAPHTHALENE (AS C10H8)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
38	CL2, INST RES MAX	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
39	PH	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
40	FLOW	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
41	PETROLEUM HYDROCARBONS, TOTAL RECOVERABLE	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009
42	BENZENE (AS C6H6)	Month	NULL	NULL	NULL	NULL	NULL	01-DEC-2009	31-DEC-2009